

TEACHING

A QUARTERLY TECHNICAL JOURNAL FOR TEACHERS

EDITED BY H. R. HAMLEY



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SEPTEMBER, 1928

No. 1

EDITORIAL

AN eminent exponent of the modern movement in education once wrote: 'That education is of most worth which comes in response to a felt need'. If that is so, as we believe it is, the publication of this journal needs no further justification; it is presented to the teachers of India in response to an expressed need. For some time past teachers of the Bombay Presidency, at least, have been feeling the need of a journal dealing with technical difficulties arising in their work. This need has often been expressed to us in letters asking for information on the best methods of teaching the various school subjects, on modern methods of class management and school organization, and on many other subjects relating to school life and work. It may be taken for granted that the same need has been felt in other parts of India.

In order to meet this need and to provide a medium through which questions of practical school instruction may be considered and discussed, it has been decided to publish *TEACHING*, a quarterly journal under the management of the Oxford University Press.

The aim of *TEACHING* will be different from that of most educational journals published in India, in that only questions of practical use to teachers in their daily work are to be admitted. This journal will have no room for political topics or for subjects of a purely theoretical interest. It will be primarily a technical journal for teachers. Its spirit will be that of serious enquiry and research. The journal will be divided into sections covering, during the year, the various branches of the profession, so that every teacher can get, at least once a year, some 'last word' on his own special subject. Thus the journal will provide a constant stimulus to the keen and enterprising teacher to keep his methods up to date. Careful attention will be given to the reviewing

of books, especially those that are within the purchasing power of the average teacher.

TEACHING receives no financial support from Government ; the publishers, moreover, have purposely reduced the subscription to an absolute minimum, so that the journal may reach as wide a circle of readers as possible. We appeal to all teachers in India not only for their financial assistance, but also for their intellectual support, without which the journal cannot become a success. We shall welcome live and useful articles, particularly those based on individual experiment or experience. We shall also welcome suggestions for future articles.

SILENT READING

I

It was a fine saying (and yet but a half truth) of the most distinguished of English school inspectors, that 'culture is reading'. Nevertheless, in this age of many books and facile readers it is probable that the full value of reading is hardly ever realized, even by those who have the reading habit. The truth is that reading is an art, and like any other art, demands a technique and discipline which are not easy to acquire. Mere quantity in reading goes for nothing. Indeed, multifarious reading may positively harm the intellectual life, especially in the years of adolescence. What is wanted is not more reading but better readers. There are people, even among the educated classes, who buy a book as if it were a sort of patent medicine and, apparently, for the same reasons; it is popular at the moment, easy to get, easy to swallow, and guaranteed harmless. Between this indiscriminate gorging of printed matter, and that exquisitely competent kind of reading which Thoreau described as a noble exercise, there is a great gulf fixed.

The purpose of this article is to attempt to show how children in schools may be helped to bridge this gulf for themselves. The problem is twofold. We have to see to it that children read the right kind of books in the right kind of way. But, first of all, it will be as well to decide what we actually mean by good reading.

A recent writer on the art of reading has drawn up a list of the activities of mind and will which good reading implies. It is comprehensive and almost ideal in its scope and purpose, and at first sight a trifle discouraging. Here are the characteristics of that rare and beautiful bird, the perfect reader. The skilled reader

- i. Reads with a definite purpose, a problem or problems in mind, the answer to which he expects to find in his book.
- ii. Grasps the author's main theme.
- iii. Sees clearly the order and arrangement of the author's ideas.
- iv. Pauses occasionally for rapid mental summarizing and re-reads important matter.
- v. Continually draws on his own experience and knowledge to supplement, conform, or reject the ideas of the book.
- vi. Estimates the value of what he reads.
- vii. Varies the rate of his progress through the book, giving important matter care and time, and skilfully skipping when the right occasion arises.

viii. Enjoys his reading.

Obviously, this is a mature ideal, and one to which children cannot be expected to attain. Nevertheless, we shall teach reading better and we shall read better ourselves if we keep some such list of reading virtues before our minds.

In organizing reading in schools it is helpful to distinguish clearly between three kinds of silent reading. There is first, reading for information, in which the child is required not merely to read, but to 'mark, learn, and inwardly digest'. Then there is browsing, reading, that is, for the sole purpose of entertainment. Lastly, there is reference reading, the scholarly habit of going to authoritative sources for information, the art of looking things up. Each of these kinds of reading has its special problems and possibilities, and no programme of English studies can be considered satisfactory which does not make adequate provision for work in each kind. You may remember that Bacon, in his essay on studies, makes an interesting distinction between books. 'Some books (he says) are to be read only in parts: others to be read, but not curiously: and some few to be read wholly, and with diligence and attention.' How true it is, as Goethe pointed out, that all the reasonable things have been said already; for Bacon's threefold division of books corresponds exactly with the threefold basis of the modern school syllabus in silent reading.

First then of reading for information.

If children are to master the art of acquiring information from print, an art which underlies all successful and lasting education, the teacher must help the child to interpret the book. In this intimate and concentrated reading, it is not enough merely to bring the child and his book together and leave them alone. There must be, first of all, careful and precise direction before the reading begins. Nor is it sufficient to follow the common practice of telling the child to read a certain number of pages. The reading direction should be expressed in terms of the subject to be read. For example, if the children are engaged in reading a biography of Wolsey, the preliminary direction might run, 'Find out from your books why Wolsey came to be so powerful'. Or 'Find out from your books why Henry VIII disgraced Wolsey, and be prepared to defend (or attack him) for doing so'. With younger children, the reading directions would necessarily be much simpler than these I have quoted. They might well take the form of a series of questions based directly on the matter to be read; these should be placed on the board and left there while the reading goes forward. The habit of setting clear and definite reading problems will help the child to read with a purpose and prevent that aimless turning over of the pages which is too often accepted as a substitute

for reading. The first condition of successful reading practice is purposeful reading by the child.

The teacher's next problem is how best to place the child's mind in the closest possible contact with the mind of his author and, further, how best to preserve this contact during the reading period. I assume, of course, that extraneous conditions are good, that the light is satisfactory, the print clear, the book near to the child's interest and not too far removed from his store of knowledge, and that the reader's physical condition, particularly his eyesight, is satisfactory. Granted these conditions—and the lack of any one of them will hinder successful reading—how can the teacher aid the child's concentration, and what can be done to clarify and connect his interpretation of the text? Obviously, some device must be found for helping the child over difficult passages. The dictionary is supposed to help, but the dictionary is by no means an ideal reading companion. Too often it just substitutes one difficult word for another, or gives a meaning which will not fit the particular context under notice. Actually there is no one device whereby the child can be placed in full and continuous possession of his author's meaning. It will help if good and bad readers are paired from time to time (it must of course be done tactfully and not too often) and the good allowed to help the bad. If the group is small the teacher can do something to anticipate difficulties in a brief review of the passages to be read. And always the children should note in their reading records difficult phrases and unfamiliar words for revision and subsequent explanation by the teacher. Special care must be taken that those unfortunate mortals, the backward readers, are not put to matter beyond their powers. It is as well to provide some books well below the normal reading age of the backward reader so that he can get some continuity in his reading and that sense of pleasure which comes from the power of going on by himself. No pains should be spared to keep the backward reader in good heart. He has especial need of encouragement and sympathy.

The last condition for successful silent reading practice is adequate and rational testing, and this is so important that I must perforce leave it for a separate article.

W. S. TOMKINSON

SOME THOUGHTS ON SCHOOL GEOGRAPHY

It may be said with truth that in India the subject of geography is only just coming into its own, for it has only just been given an honourable place among the subjects of the school curriculum. It has been now admitted to the dignity of a matriculation subject; it is still begging its way into the universities. In view of the increasing importance being given to school geography we may ask ourselves three questions: (a) Why should geography be taught to school children? (b) What facts should be taught? And (c) How should these facts be presented? One may say that consideration of these questions is hardly necessary, now that geography has an assured status. It is an examination subject, and boys and girls will 'get it up' somehow or other. Yes, somehow or other indeed! We all had to pass in geography for matriculation. We all had to get up the subject *somehow*. But what has been the result? Did we ever like the subject? Do many like it even now? No! Then whence came this 'geography phobia' so prevalent to-day?

It will not do to say that geography lessons must be taught by teachers and learnt by pupils because an examination has to be passed. Those who say this, merely evade a problem of fundamental importance. The workman who does not know why he works is at best but a dull worker. He is like a beast of burden that does its master's work without knowing what it does or why it does anything at all. Even if the workman works under the influence of hunger—for the sake of earning a livelihood—his case is no better than that of the animal that works for fear of the master's whip. The teacher of geography is a highly cultured workman—who ought to be able to give better reasons for teaching geography than the mere exigencies of an examination. For examinations are means to an end, and are not ends in themselves.

'Time is short and art is long' and, be it added, the energy of a school boy is limited. The question has to be faced, Cannot the school curriculum be curtailed? Cannot geography be removed from the scheme of school studies? No doubt similar questions can be raised in respect of all the other subjects of the school course. But it will be germane to our purpose to answer these questions only so far as geography is concerned. Obviously, the question cannot be answered satisfactorily till we answer another question, What is geography?

It must be confessed at the outset that this is a very knotty question. Opinions differ as to the true meaning of geography. Every school boy knows that geography literally means the 'description of the earth'. What is commonly not known is that neither 'description' nor 'earth' is to be used quite in its usual sense. By 'description' is not meant a mere enumeration of topographical details—capcs and bays, plateaus and mountains, lakes and rivers, towns and cities. Such an enumeration would be of value if the storing of stuff in the mind was of any educational importance. People may have believed in the efficacy of such storing when faculty psychology was in vogue, and men honestly held that memory training was possible. But no competent authority values memory training now that the faculty psychology has been exploded. The fact of the matter is that the learning of strings of names even with the aid of costly maps and atlases does not appeal to children of any age,—a clear proof, by the way, that it does not educate.

Then again the 'earth' which is 'described' is not the earth as a whole, but its surface. This surface is but a thin film which man has explored only partially. This film consists of (a) the lower stratum of the atmosphere; (b) the outer parts of the earth's solid crust—the lithosphere; and (c) the water that makes up the oceans and the seas, the surface currents and the underground water—the hydrosphere. The description of the earth's surface may, for the most part, be restricted to the way in which land and water are arranged on the surface and to the varying movements of the air. Geography may thus be regarded as a *science* that deals with the distribution of phenomena on the earth's surface. It should be noted that here the word 'phenomena' refers to the arrangement of land- and water-forms, atmospheric and oceanic conditions and, perhaps, of plant and animal life. The study of such distribution may be an excellent intellectual exercise for the professional geographer, the savant of geography, to whom such 'knowledge is of most worth'. But it is doubtful whether it ever appeals to school children. It is a truism to say that a savant's interests are not identical with those of an immature boy or girl. *Because geography as the science of physical distribution has its charms for the learned scholar, it does not follow that it must have its worth for children and should be taught to them.* The same line of argument would lead us to the logical conclusion that children of a school-going age should be taught, let us say, the theory of higher plane curves, or algebra of quantics, or even Kant's Critique of Pure Reason, for are not these subjects most attractive to some adults? At best, study of this kind of geography can have as much value to a school boy or school girl as the study of anatomy to

What then is our justification for including geography in the school curriculum? Fortunately land-forms, water-forms, atmospheric and oceanic conditions are not the only phenomena on the surface of the earth. There are other phenomena which *do* appeal to the child mind. These are the phenomena of human activity. Ask a school boy the simple question, 'If you went to a foreign land, what would you like to see there?' His answer will tell you where his natural interests lie. Such a question as this was recently put to several hundreds of Indian children of school-going age. Their answers most emphatically declared that they wanted to see *people, their ways and their institutions*. Children as well as adults like to know how people in other lands live; what food they eat; what kind of dress they wear; what kind of schools they have; how they earn their living; how they govern themselves, and so forth. Curiously enough, children seldom express a desire to see the mountains, lakes, and rivers of a country. Whenever they say that they wish to see the natural scenery of a country they mean that they would like to see the beauty-spots and the places of interest. Let the savant of geography take delight in the study of land-forms and water-forms, and distributions of every kind; the primary interest of school children is in human phenomena.

From the point of view of children, geography should be a study of human activities as they are occurring at present. Such a study will necessarily involve an explanation of these activities, and will have to take into account physiographical, historical and sociological factors, as far as such factors are illustrated in the phenomena studied. It will thus be seen that school geography is to be treated as a connecting link between the physical and the human sciences. It is a veritable fabric—the warp and woof of which are supplied by the sciences and the humanities—but which, like the finished cloth, has distinct individuality and value of its own.

This interpretation of the nature of school geography need not be taken as doing violence to etymology. If we must bring in the idea of description let us say that, so far as school children are concerned, '*Geography is a description of human activities on the earth's surface*'. Nor need we ignore the views of the geography savant. The description of human activities will become fuller and more systematic if their *distribution* is studied according to a plan—say, *region by region*. But we shall dwell on this point at greater length later on. For the present let us agree with a well-known author who says, 'Geography is scientific in method, and humanistic in outlook. But its eternal subject is man on the earth.' If 'the proper study of mankind is man,' the proper study of man's children is *geography treated from the human standpoint*.

THE NUMBER SYSTEM OF ELEMENTARY MATHEMATICS

TEACHERS of elementary algebra are often handicapped by the hazy notions possessed by their pupils of the fundamental concepts and operations of arithmetic. They find, for example, that the only meaning ever given to the plus sign is that of 'adding', and, to the minus sign, that of 'taking away'. They find, too, that their pupils fail to grasp the truth, which seems so obvious to themselves, that

$$\frac{2}{3}x = \frac{2x}{3} = \frac{1}{3}(2x)$$

or that

$$(a-b)(b-c)(c-a) \equiv -(b-a)(c-b)(a-c).$$

Some respond to the situation by loud criticisms of the primary schools but by nothing more than that; others take the line of least resistance and present the pupil with a number of rules to be memorized and applied; others take the wise course of dealing with these difficulties carefully and thoroughly.

In the following series of articles an attempt will be made to deal with these fundamental concepts and operations in such a way that the pupil will not only have his previous knowledge confirmed but will also be introduced to new and interesting mathematical topics. The ideas will be expressed, as far as possible, in language suited to a class beginning the study of algebra. Only a few illustrative examples will be given; the teacher will be able to supply many more without any difficulty. All new terms are printed in *italics* when first mentioned, mainly to draw the attention of the teacher to words that should not be passed over without full understanding.

I. Numbers

The letters $x, y, z, a, b, c, A, B, C$, etc., commonly used in algebra represent *numbers*, for example: W is the *number* of ounces in a block of wood; A is the *number* of square inches in a rectangle; x is the *number* of gallons in a bucket of water; n is the *number* of boys in a class. The numbers 1, 2, 3 . . . used in arithmetic and symbolised in algebra are called the *natural numbers*. Natural numbers are used in *counting* and *measuring*. We say that there are six boys in a row, or that there are six yards in a piece of *sari* cloth. In counting we use the natural numbers to indicate *how many* things there are. In measuring we choose a *unit* (U) of the same kind as the

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contained in the thing measured. The number of units thus found is called a *measure* (q). This may be expressed: $Q = q.U$. There is the following difference, however, between numbering and measuring. When 'measuring' we often find that the unit does not exactly fit the quantity we are measuring. For example, we may find that the *sari* cloth cannot be divided exactly into six yard pieces; there may be something left over. We represent this part left over by a *fraction*, say $\frac{1}{2}$, or by a *decimal fraction*, .5. These numbers are called *fractional numbers*, and to distinguish them the numbers 1, 2, 3, . . . are called the *integral numbers*, or *integers*. The fraction $\frac{1}{2}$ is called a *vulgar fraction* and its equivalent .5 a *decimal fraction*. Now when we are 'numbering', in the strict sense, we must use integral numbers. We cannot talk of six and a half boys, or even of six and a half cricket balls. Sometimes, however, the ideas used in measuring are carried over into counting and we speak of 'six and a half cups of water' by which we may mean that we had six full cups and one cup half-full, but generally we mean that we fill a cup six *times* and there is still half a cup left over.

II. Order, or Sequence

The natural numbers are also used to denote *order*. We may define the positions of six boys in a row by giving them the numbers 1, 2, 3, 4, 5, 6. These numbers are merely *labels* to indicate the position of each boy in the row. We specify that if 2 is on the right of 1, then 3 is on the right of 2, and so on. When things are arranged in order they are said to form a *sequence*. Mile posts on a road, for example, form a *distance sequence*; the hours shown by a clock form a *time sequence*. The natural numbers are, therefore, used as labels to mark the position of things in order. Many measuring instruments may be looked upon as sequence indicators. Clocks, scales, thermometers, barometers, ammeters, voltmeters, etc., are illustrations of such instruments.

Example: The heights of 21 boys in a scout troop were given in inches as follows—

64, 63, 62, 61, 62, 60, 45, 52, 72, 62, 61, 69, 66, 63, 65, 59, 58, 54, 56, 49, 57.

Arrange the boys in order 'tallest on the right, shortest on the left' of the scoutmaster, and draw a diagram to represent them.

The sequence is

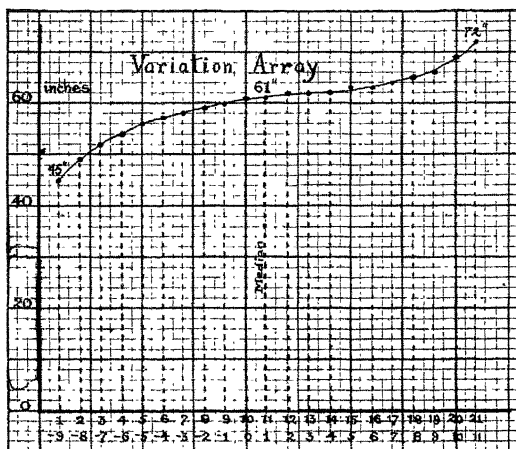
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
45	49	52	54	56	57	58	59	60	61	61	62	62	62	63	63	64	65	66	69	72

In this sequence of 21 numbers, the smallest (45 in.) is on the extreme left and the greatest (72 in.) on the extreme right. The accom-

panying figure is a *scale diagram* or *graph*, of the boys as they stand, 'tallest on the right, shortest on the left'.

A graph of this kind is called an *array*, and, in this case, a *variation array*. The eleventh boy from either end is exactly in the middle of the array. This middle position is called the *median* and the height of the boy in the median position is called the *median height* or *median value*.

In this case the median value is 61 in.



Plus and Minus Order

Now suppose the boys were asked by the scoutmaster to 'fall in' in the same order every day. The boys would simply remember their numbers and also the convention that, as seen by the scoutmaster facing them, 2 is on the right of 1, 3 on the right of 2, and so on. The numbers would be even more useful than names, for, if the scoutmaster wanted three boys to do some work, he could call out any three numbers.

But there are other ways of numbering the troop. Suppose we number them from the middle, that is, from No. 11. We now give No. 11 a new number, No. 1, and to No. 12 we give the new number, No. 2, and so on. The question is: What numbers shall we give the old numbers, 1, 2, 3 . . . 10? Now, since each boy's number is one less than that of his right-hand neighbour, we must number the old No. 10 as 1 - 1 or 0, and No. 9 is one less than No. 0. We usually write this as -1. No. 8 will now be No. -2 and so on.

So we get the old and new numbering thus :

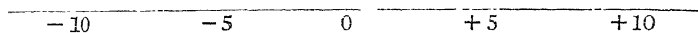
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11

We usually speak of the numbers -1, -2, -3 . . . as *negative numbers* to distinguish them from 1, 2, 3 . . . which are *positive numbers*. Positive numbers are often written +1, +2, +3 . . .

Such a system of positive and negative numbers is called the

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system of *directed numbers*, since the signs + and - really denote direction in the sequence. Directed numbers are sometimes put in brackets, (+5), (-3), (+a), (-b). The system of directed numbers may be represented by points on a straight line:



Such a line is called an *axis of reference* and the point 0 is called the *origin*.

Directed numbers have *direction* as well as *magnitude*; they may be integral or fractional.

Positive and Negative Changes

Suppose the scoutmaster said to a certain boy (No. +2), 'Change places with the boy 5 places from you'. The boy would not know whether to go to the right or to the left, unless the direction were also given; the scoutmaster may say, 'Go *up* 5 places,' or 'Go 5 *positive* places,' or 'Go 5 *negative* places.' If the boy goes *up* 5 places, his final position will be (+2) + (+5), or (+7). If he goes *down* 5 places, his position will be (+2) + (-5), or (-3).

III. Algebraic Opposites

From the above example it will be seen that 'plus' and 'minus', have the idea of *opposites* in a sequence. 'Right' and 'left' are opposites, so also are 'up' and 'down' and 'north' and 'south'. If one of these pairs of opposites is designated by the plus sign, the other is given the minus sign. The student should know the opposites or negatives of the following positives: Right, up, above, north, east, more, add, credit, profit, hence, ahead, to, in, early, quickly, forward, long, big, high. Again, if we write 5 yd. to the right as (+5), 5 yd. to the left will be (-5); if Rs. 500 credit is written (+500), Rs. 500 debit will be (-500); if 10 years hence is written (+10), 10 years ago will be written (-10), and so on.

From this idea of opposites follows the convention that (+5) ml. south is (-5) ml. north. Again

(-5) yards ahead = (+5) yards behind.

(+10) rupees debit = (-10) rupees credit.

(-10) days hence = (+10) days ago.

IV. Algebraic Operations: Components and Resultants

We may also use the signs + and - to express *operations*. Thus we say: 'I walk 5 miles to the north *and* then 4 miles to the south' and write it (+5) + (-4). The operation indicated by the word *and* is expressed as a + sign between the brackets. Again 'I had Rs. 30 in the bank *and* I withdrew Rs. 15. The result is (+30) + (-15). The *parts of a complete operation* are called the *components* and the *completed operation* is called the *resultant*.'

Thus, in the last illustration $(+30)$ and (-15) are the *components*: the *resultant* is $(+30) + (-15) = (+15)$.

Example: A boy chased a dog up the school stairs. He went up 10 steps, then down 6 steps, then up 17 steps, down 12 steps, and caught the dog. Where did he catch the dog?

The components are $(+10)$, (-6) , $(+17)$, (-12) . The resultant is $(+10) + (-6) + (+17) + (-12) = (+9)$. The boy caught the dog on the 9th step *up*.

Opposite Operations, Resolution

The opposite operation, that of obtaining the components when the resultant is given, is called *resolution* and is indicated by a minus sign.

Example (1): I set out for a place 5 ml. east; in the first hour I go 3 ml. east. How much further must I go?

Here the *resultant* or *objective* is $(+5)$ and one component is $(+3)$.

The other component is $(+5) - (+3) = (+2)$.

I must go $(+2)$ ml. or 2 miles further east.

Example (2): I set out for a place 5 ml. east; in the first hour I go 8 ml. east by mistake. How much further must I go?

The objective is $(+5)$; one component is $(+8)$.

The other component is $(+5) - (+8) = (-3)$.

I must go (-3) ml. or 3 miles west.

Example (3): I set out for a place 5 ml. east; by mistake I go 3 ml. west. How much further must I go?

The other component is $(+5) - (-3) = (+8)$.

I must go $(+8)$ ml. or 8 ml. east.

These three examples illustrate the *Rule of Signs*, that $+$ by $-$ gives $-$, and $-$ by $-$ gives $+$

Summary

We may now summarize the uses of the $+$ and $-$ signs in mathematics.

1. The $+$ and $-$ signs are used to distinguish *two types of numbers* called positive and negative numbers, and $(+a) + (-a) = 0$.

2. The $+$ and $-$ signs are used to denote *direction* in an order or sequence.

3. The $+$ and $-$ signs are used to indicate *opposites*. The opposites of equal numerical magnitudes produce a zero result, thus $(+a) + (-a) = 0$.

4. The $+$ and $-$ signs are used to indicate *operations*, the $+$ sign is used when combining components to produce a resultant and the $-$ sign when resolving a resultant to find a component. *Addition* and *subtraction* are plus and minus operations. Subtraction may be looked upon as *complementary addition*.

[The next article will deal with a number of concrete illustrations of the 'Rule of Signs']

H. R. HAMLEY

EDUCATIONAL PSYCHOLOGY AND THE PRACTICAL TEACHER

I. Introductory

EDUCATIONAL psychology is a high sounding term, and the practical teacher tends to regard it as something vague and fantastic, having little relation to the ordinary everyday problems of the classroom.

That he has some justification for this attitude will be seen from a survey of the chapter headings of any textbook of the subject. We find such subjects as 'Emotion,' 'Sentiments,' 'The Unconscious,' 'The Development of Personality,' and so on. The interest and importance of these branches of psychology cannot be denied; but surely they are important to everybody, and not to schoolmasters alone. Most of all they are important to parents.

It is sometimes forgotten that the vast majority of schoolmasters work in day-schools; their main contact with the boy is in the classroom. Even if they see something of him in games or scouting afterwards, yet, even so, their total acquaintance with him is limited to some six out of the fifteen waking hours, and that on only 200 days out of the 365. For every one hour at school the boy spends five at home. Moreover, the boy comes to school at the age of eight or nine. Now the one thing which these books of psychology emphasize above all else is that the earlier the year the greater its importance to the character formation of the child. It is not an exaggeration to say that the main outlines of a child's character are finished by the time he is five years old, and by the time he is eight he is a very definite personality.

It is not suggested for a moment that the schoolmaster should not do what he can to influence the character of the child, or that he cannot do anything at all. But he cannot do much, and it is important to two classes of people that this should be very much more clearly realized than it is at present.

It is important to parents: it is no good their thinking that because they are paying a few rupees a month for a boy to be taught reading, writing and arithmetic and such things for a few hours a day at school, they have therefore got rid of all responsibility for their son's character.

It is important also to Training Colleges and to people who write about educational psychology. By all means let the student of education learn how far and in what ways he can influence the boy's

character and emotions in the process of teaching reading, writing and arithmetic, and through the social and athletic activities of the day-school. Indeed a boy can be taught much of neatness, carefulness, self-restraint, honesty, and other virtues in the process of an ordinary arithmetic lesson; and so also, let the parents note, in the process of an ordinary breakfast, and in every activity throughout the day. But what we do suggest to the psychologist is this:—Since the teacher's main duty is the teaching of reading, writing and arithmetic and such things, so the main part of the book of psychology should be the psychology of reading and such things. And let there be a separate book on emotions and hidden complexes and all the psychology of character formation which parents and schoolmasters may read equally, though, strictly speaking, the parent's book ought to be five times as long.

In this little series of articles a small sample, or indication, will be given of the sort of book which we should like to see written—'Applied Psychology for Teachers of Day Schools.'

The term 'Applied Psychology' is rather suggestive. The best-known department of applied psychology to-day is industrial psychology. The industrial psychologist visits a factory and endeavours to discover by means of psychological analysis how each worker may achieve a greater output at the same expenditure of energy (or the same output at a less expenditure). He does this mainly by eliminating waste, by cutting out useless movements, by simplifying needlessly complicated methods, by eliminating things which interfere with the worker's movements, or influences prejudicial to his efficiency.

This is just what we ordinary schoolmasters want also. We want to know how we may economise our energies and the energies of the boys, so that we may teach and they may learn more easily and more efficiently.

References for Further Reading¹

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PYLE, W. H., *Psychology of Learning* (Warwick and York)

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STARCH, D., *Educational Psychology* (Macmillan & Co.)

INDUSTRIAL PSYCHOLOGY

MYERS, C. S., *Industrial Psychology in Great Britain* (Methuen & Co.)

¹ I am indebted to Maulvi Mokhesur Rahman, of the Teachers' College, Dacca, for the bibliographies of these articles.

II. Principles

Teaching is an attempt to influence the child's future conduct; it is an attempt to ensure that in a certain future situation he shall respond in a certain, correct way.

Thus the arithmetic teacher endeavours to ensure that, given the situation ' $2 + 2 = ? -$,' the child may respond '4.'

All teaching is based upon the axiom, What a person does once, he tends to do again. This axiom may be expressed more clearly as, *The doing of a thing once produces one degree of probability that the person will do it again; and the doing of it x times produces x degrees of probability that he will do it again.* When x is made infinity, then it is infinitely probable (that is, certain) that he will do it again.

Of course one can never reach absolute certainty in dealing with living things: but it is as near certainty as anything can be that an elderly bank clerk faced with the situation $2 + 2 = ?$ will respond '4,' and it is almost certain that a veteran soldier on the parade ground will respond in the correct manner to the command 'Attention'.

Teaching, then, consists in reproducing in the class-room certain situations which are likely to occur in the child's future adult life, and in making the child respond to them in the correct way so often as to ensure that he will so respond in future.

We proceed to deduce certain principles from this.

The first principle is—

The Principle of Prevention of Error

Every response to a given situation produces some learning-effect. An incorrect response produces an adverse effect, just as a correct response produces a favourable effect.

Thus, suppose a situation to which there are two possible responses, A the correct response, and B the incorrect; and suppose that ten repetitions are adequate to ensure certainty of either response in future. Then ten repetitions of A will ensure future certainty of the correct response, while ten repetitions of B will ensure certainty of the incorrect response.

Similarly,—

9 repetitions of A and 1 of B produce a 9 to 1 chance in favour of A.
 8 repetitions of A and 2 of B produce a 4 to 1 chance in favour of A.
 7 repetitions of A and 3 of B produce a $2\frac{1}{2}$ to 1 chance in favour of A.
 6 repetitions of A and 4 of B produce a $1\frac{1}{2}$ to 1 chance in favour of A.
 5 repetitions of A and 5 of B produce a 1 to 1 chance in favour of A
 or B.

In this last case the child is worse off than if he had never studied the subject at all ; for, not only is the whole of his labour wasted, but he is actually handicapped as regards beginning again. For he has now not only got to learn the response A, but also to obliterate a tendency towards the response B. It is much more difficult to obliterate than to learn. Indeed, we never completely forget; an error once made is a permanent danger, a permanent obstacle to progress.

Our first, and perhaps most important, principle is therefore the principle that all errors must be prevented.

Notice the word 'Prevented.' It is not sufficient to let the child say a wrong thing and then to correct him. He must never say anything wrong : he must never even think it !

Much of the child's time is at present wasted, and worse than wasted, in creating wrong impressions in his mind which later cost infinite trouble to eliminate,—which indeed never can be entirely eliminated.

The second principle which may be deduced is—

The Principle of Adequate Practice

Let us suppose that to incorporate a new word into the English vocabulary of the pupil requires 100 repetitions. Instead of giving 100 repetitions to the one word the teacher gives 50 each to a pair of words, or 50 to one, 30 to another and 20 to a third. These inadequately practised words will not become embodied in the vocabulary. They will be known to a certain extent, but not well enough to be used ; and, not being used, they will eventually be forgotten. This principle applies both to whole subjects and to individual items of knowledge. How many subjects do we learn just not well enough for them to be of any use to us ; and, not using them, eventually we forget them altogether—e.g. the average boy's Sanskrit or Latin or Algebra? Much of the boy's time in the early stages of his English study is wasted in encountering comparatively rare words once or twice only, or at any rate so seldom that they do not become a living part of his vocabulary, and so are eventually lost.

This principle may be applied in the reverse way also. If, instead of giving 100 repetitions to the word, the teacher gives 200 or even 1,000, this is called 'Overpractice'.

Of course the amount of practice required for learning anything varies with the degree of certainty required. Military drill requires a very large amount of practice even after the movement has been perfectly mastered by the recruit, because it is necessary to ensure that he shall not forget it even in the excitement of battle. So also first aid should be known beyond the normal degree of certainty, and so also

any form of knowledge or skill which will have to be reproduced under exceptionally trying circumstances. To cover all cases we may define 'adequate practice' as 'that amount of practice which is needed to ensure that the pupil will respond in the correct way under those circumstances in which the response is likely to be required'. We need not so drill the facts of history that they could be reproduced during an air raid, nor will we so drill the responses of first aid so that they can only be reproduced in the calm atmosphere of the class room.

Now there are many things in school which are learnt in a series. The child learns his Two Times Table, then his Three Times Table, then his Four Times Table, and each time he 'says his tables' he begins at the beginning and repeats as far as he has got. So this is what actually happens :

Let us assume 100 repetitions to be the amount required for adequate impression of one table.

If the child repeats all the tables at each session, then,—

The 12 Times Table is repeated .. 100 times

11	..	200	..
10	..	300	..
9	..	400	..
8	..	500	
7	..	600	
6	..	700	
5	..	800	
4	..	900	
3	..	1,000	
2	..	1,100	

6,600 Total repetitions

Actual repetitions required .. $11 \times 100 = 1,100$

5,500 Wasted repetitions

Similarly how many times does a boy write 'A', 'The', 'And', 'There', and such words after he has mastered the handwriting of these words perfectly? Instead of making the boy write out the whole lesson, why does not the teacher make him practise writing the new and unfamiliar words only, or the new words in a minimum of necessary context?

Of course 'overpractice' cannot be entirely eliminated; but a great deal of it can be, and it is one of the chief causes of waste of time in the schools.

The third principle is—

The Principle of Specific Practice

A child learns to read by reading ; he learns to write by writing, to speak by speaking. Whatever be the response which you wish the child to make in his future adult life, that response, and precisely that response, is what must be practised in the school.

Of course it is possible to achieve something by 'transferred training'. You may make the child do something slightly different and hope that he will be able to apply the training thus acquired to the actual situation (as in learning to swim by exercises done on dry land). But in such cases there is always some loss, some amount of practice whose effects are not entirely transferred. The best practice is the most direct practice.

The meaning of this principle will be best understood by considering examples of the breach of it. Thus in spelling the teacher makes the boy repeat R-E-A-D, read. The boy gets an oral memory of the spelling. But spelling is largely a memory of the hand and the eye. As I write this I do not spell out the words orally ; my pen forms them automatically and my eye sees from their general familiar shape that they are spelt correctly. Hence the boy who is taught to spell orally is not performing in the class precisely the response that he will be required to make in actual life ; and therefore there is wasted effort. Other examples of the breach of this principle are copy-writing and translation from, or into, English.

At least half of the art of teaching consists in analyzing exactly what it is that you want the boy to do : and the other part consists in getting him to do it as exactly as possible.

There is one other principle which may be added,

The Principle of Desire to Improve

You write many hundreds of words in the day, but it does not make your handwriting any better. Mere motiveless repetition of an action will not produce any improvement. Nor will repetition of an action without any effort to discover whether the action is becoming more perfect. A soldier cannot learn to shoot merely by firing off hundreds of rounds of ammunition. He must try to hit the target, and must have his shots marked on the target, so that he may see at intervals whether they are getting nearer to the bulls-eye.

Thus we have deduced from the axiom with which we started four fundamental principles of learning :

1. Prevention of Error
2. Adequate Practice
3. Specific Practice
4. Desire to Improve

20 PSYCHOLOGY AND THE PRACTICAL TEACHING

Here you have the psychology of learning in a nutshell, stripped of all its technical terminology and learned trappings.

We have now to apply it to specific school subjects.

References for Further Reading

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MICHAEL WEST

A LESSON IN APPRECIATION

'The Tiger' (William Blake)

Blake, the Artist-Seer.—With wonderful visions of earth and heaven to reveal, Blake was fortunate in having at his command the arts both of painting and poetry. This twofold expression was possible because he was at the same time skilled engraver and poetical genius.

A Forerunner of the Romantic School.—Though Blake claims to belong to no particular school of poets, Milton and Shakespeare without doubt inspired him, as did the Old Masters in painting. But we hear him saying, 'My business is to *create*'. He was a precursor of the romantics in his insistence upon freedom in regard to subject and treatment.

(a) *Subject.*—His lyrics are simple and show a love of nature, a delight in children, a joy in the home and all the interests of ordinary life. In their very simplicity there is beauty and charm, for each subject is treated with the delicate imagination of the artist.

(b) *Style.*—'A cistern contains, a fountain overflows'. This was another saying of his which probably gives an insight into his way of working. His verse was spontaneous and could not be confined within the limits of conventions and rules of verse observed by his predecessors. There is for this reason a freshness and, occasionally, an extravagance in his lyrical poems which show he has chosen to sing them to his own tunes. (A lyrical poem is originally a poem sung to the accompaniment of the lyre.)

We should try to catch the vision of this radiant prophet and discover something of his meaning. Blake often merely suggests the thoughts underlying the words.

'The Lamb' and 'The Tiger' Contrasted

Let us read the poem we have selected for special study.

THE TIGER

Tiger, tiger, burning bright
In the forests of the night,
What immortal hand or eye
Could frame thy fearful symmetry ?

In what distant deeps or skies
Burnt the fire of thine eyes ?
On what wings dare he aspire ?
What the hand dare seize the fire ?

A LESSON IN APPRECIATION

And what shoulder and what art
 Could twist the sinews of thy heart ?
 And when thy heart began to beat,
 What dread hand and what dread feet ?

What the hammer ? what the chain ?
 In what furnace was thy brain ?
 What the anvil ? what dread grasp
 Dare its deadly terrors clasp ?

When the stars threw down their spears,
 And water'd heaven with their tears,
 Did He smile His work to see ?
 Did He who made the lamb make thee ?

Tiger, tiger, burning bright
 In the forests of the night,
 What immortal hand or eye
 Dare frame thy fearful symmetry ?

And now the dainty little verses called 'The Lamb' :

THE LAMB

Little Lamb, who made thee ?
 Dost thou know who made thee ?
 Gave thee life, and bid thee feed,
 By the stream and o'er the mead ;
 Gave thee clothing of delight,
 Softest clothing, woolly, bright ;
 Gave thee such a tender voice,
 Making all the vales rejoice ?

Little Lamb, who made thee ?
 Dost thou know who made thee ?

Little Lamb, I'll tell thee,
 Little Lamb, I'll tell thee :
 He is called by thy name,
 For He calls Himself a Lamb.
 He is meek, and He is mild ;
 He became a little child.
 I a child, and thou a lamb,
 We are called by His name.

Little Lamb, God bless thee !
 Little Lamb, God bless thee !

'The Lamb' belongs to a series of poems called *Songs of Innocence* ;
 'The Tiger' to *Songs of Experience*.

The *Songs of Innocence* are full of joy in God's creation seen by
 one whose eyes seem newly opened to the beauty of the world.

The *Songs of Experience* have not the same spirit of gaiety. One
 is faced in life with serious lessons to be learnt ; there is suffering ;
 there are doubts ; there are fears.

The full title given to the first book containing these songs was

Songs of Innocence and Experience, showing the Two Contrary States of the Human Soul. Blake went through life without losing his sense of the beautiful and joyous even when experience brought difficulty and sorrow.

'The man who has never in his mind and thought travelled to heaven is no artist.' Blake had travelled to heaven; heaven was as real and as near to him as to little children.

So we see in 'The Lamb' just the child's delight in one of God's creatures, a play-fellow, one capable of God's blessing as the child himself.

'The Tiger' is very different. It gives us vivid glimpses of a tiger in a forest, a beast to be feared, a beast to be avoided, not played with, a beast strong and terrible.

When God made the lamb He must have smiled with pleasure at His own handiwork. Did the same Creator make the tiger and feel the same satisfaction in this work of His hands? He seems here rather to be a smith, tremendously powerful, among the immortals. With 'dread hand' He forges on a gigantic anvil this tiger now 'burning bright in the forests of the night,' superhuman in strength and form. In the darkness and in flashes too fleeting to describe he sees the wrath of God thus expressed. He can find words only in exclamation and questions.

The deep places of earth, the heavens, the sea and all the powers of nature must have been drawn upon to produce this terrifying creature.

Conclusion.—The Creator is still the Creator whose tender care gave us the gentle lamb, but in the presence of this forest-rover we see Him and are puzzled by His greatness, for the tiger leaves us asking, 'What?' 'How?' 'Why?'

ELEANOR RIVETT

NOTES OF AN ACTUAL SCHOOL LESSON ON THE ABOVE POEM

N.B.—Answers to questions are in brackets

Introduction

Can you give the names of any poets who were also artists? (Tagore, Rossetti, Ruskin.) [Case of Ruskin discussed.]

To-day we shall read a poem by a poet named Blake, who was both poet and artist. Have you ever read a poem by him? (Yes, 'Little Lamb'.) Did you like it? (Yes.)

We had better learn a few facts about Blake first. He was a skilled engraver, painter and a poetical genius. He is sometimes called a fore-runner of the Romantic School, [This point explained, with reference to Blake's *subject matter* and *style*, very briefly.]

Presentation

1. Let us first refresh our memories with Blake's 'Lamb'. [The poem is read.] What is his question? (Who made thee?) What is his answer? (God made thee.) What makes him sure that the lamb is God's work? (It is gentle, happy, etc.)

2. Now let us read together another poem by Blake, 'The Tiger'. When I have finished reading it, I want you to tell me the question that he asks, and the answer he gives. [Teacher reads the poem with expression.]

3. What is his question? (Who made the tiger?) His answer? (It is not given, he finishes with a question.) Why? (The tiger is such a terrible animal that he cannot believe that God made it.) It is not like the lamb, then? (No, the lamb is gentle, the tiger is cruel.)

4. Read the poem silently and be prepared to give me words showing the tiger's fierce nature. [About four minutes allowed.]

Now let me have these words: (Fearful, burnt the fire, twist the sinews, dread hand, dread feet, furnace, hammer, dread grasp, deadly terrors, clasp, etc.). Are there any other words that add terror to the picture? (In the silent of the night, distant deeps, sea, tears.) Yes, it is a terrible picture. But I see words that seem to show that the poet also saw *beauty* in the tiger. Can you find them? (Symmetry, burning bright, the fire of thine eyes, art.) Yes, the poet cannot but admire the tiger's form and strength. Can you find the words that show strength? (Burning, fire, twist, sinews, hammer, chain, furnace, anvil, clasp.) So you have a picture of a strong, terrible beast.

Who made the tiger? (God. No, Blake doesn't say.) Discuss what words Blake uses to show that man could not have done it? (Immortal hand.) To whom is he likened? (To a blacksmith.) Let us find all the references to the blacksmith. (Burning, fire, seize the fire, shoulder, twist, sinews, furnace, anvil, spears.) Discuss these. (The blacksmith is strong, he has to work with strong tools, he makes strong things.) But it says that the spears 'watered' heaven with their tears. How is that? [Some suggest meteorites, others sparks from the anvil. One boy connected the two ideas. 'Meteorites are like sparks from God's anvil.' Sparks fall like a shower of water.] So the tiger is a strong thing made by a blacksmith.

5. We have now discussed the meaning of the poem sufficiently. Let me now have your opinion about the poet's language. Which do you consider the *most expressive line* in the poem? ('Could twist the sinews of thine heart,' 'And water'd heaven with their tears,' 'What immortal hand or eye, Dare frame thy fearful symmetry'.) Discussion.

Now let me have the *most expressive words*. (Symmetry, dread, water'd, etc.) Discussion on these.

So the poet asks a question, but why does he not give the answer? (He is puzzled.) Why? (The tiger is so terrible.) Which line suggests that he is puzzled? ('Did He smile His work to see?' 'Did He who made the Lamb make thee?')

Conclusion

Blake asks questions that he does not answer. What? How? Why? But he still feels that, in some way, the Creator who made the gentle lamb is the Creator of this rover of the forest. Shall I read the poem through once more? [Teacher reads.] We still have time for one more reading. [Calls upon a boy to read.]

THE TEACHING OF SANSKRIT

It is said that the 'Minute of Lord Macaulay of 1835 dethroned Sanskrit from its high pedestal'. But under the kindly treatment that she subsequently received here and in Europe, the 'ex-queen' could evidently live and hold up her head to such an extent that those very people, who made the above remark on the Despatch of 1835, in 1912 expressed the hope that 'before the year 1935 dawned, Sanskrit was sure to re-occupy the throne side by side with English'.

At the present time there seems to be little possibility of this prediction coming true, for the position of Sanskrit in this country has gone from bad to worse, especially in the Bombay Presidency. We may ask ourselves: 'Is Sanskrit really necessary?' We reply to this question by reminding ourselves that Sanskrit is the mother and feeder of almost all the vernaculars of India. Again, in religion, philosophy, law and ethics, astronomy and mathematics, philology and sociology, Sanskrit has a heritage that the world cannot afford to lose. Why, then, are so many rallied against it? There are two obvious reasons: Firstly, the curriculum is overcrowded, especially on the language side. Secondly, it has to be acknowledged that students have a distaste for the subject. Our goal has been 'to understand, not to feel', 'to comprehend, but never love' Sanskrit. Under the present system, which has been in vogue for the last fifty years, we do not approach 'Sanskrit' as appreciators of a *language* full of vital force, but as doctors holding a post-mortem over its dead body—grammar, or as scientists, intent on the 'vivisection' of words. If we change our outlook and assume an attitude of love and appreciation, Sanskrit is bound to win over all that are now opposed to it. But a change in the outlook necessitates an overhauling of the methods of teaching. To this we shall now turn our attention.

The oldest method of teaching in India as revealed in some of the *Upanishads* was heuristic. In later years, the oral lessons given by the *guru* came to be preserved as commentaries. Most of these commentaries, which are more than a thousand years old *explain* Sanskrit works *in Sanskrit*. These are now recognised as the best and the most intelligent commentaries on the *Upanishads*. The so-called 'shastri's method', which is suggested by some to be a suitable one for present use in schools, is neither old nor scientific. Then comes Dr. Bhandarkar's method, which has been slightly modified by later Sanskrit teachers. This method is commonly known as the 'grammar' method.

To maintain that grammar must be learnt *before* beginning the study of a language is a logical heresy. To teach grammatical forms by dissection of the word and in a deductive way is a psychological blunder. To introduce the pupil so taxed with cram work to 'one-word' sentences or to others that are dry, isolated and distorted, like अस्ति ; नृपो जयति—अश्वावुसततः ; गिरी आरोहन्ति ; तृणान्यन्यथ; betrays gross ignorance of the law of the human mind which says, 'We learn through our interests'. Dr. Bhandarkar is not to blame for this. He wrote for his own generation. But to perpetuate an old set of doctrines, simply because they are old is to repeat the folly of the man who always drank saltish water from a well, simply because it was his ancestral well. Later modification of Dr. Bhandarkar's method has resulted at least in giving more interesting material for reading, but the place of grammar is as exalted as ever. Under the 'shastri's method', the most common grammatical forms are first learnt by heart. The *Rupāvali* or the 'inflections', the '*Sama's chakra*' or 'compounds', the *Amarkośa* or the 'dictionary in verse,' and the *Kaumudi* or 'grammar' in some form or other are studied in regular order ; but the pupil is introduced to easy literature like the *Hitopadesha* and then to classical poetry like the *Raghuvamśa*. The pupil receives from the guru the translation into vernacular of the Sanskrit passage and often repeats it after him. He seldom thinks for himself, and the problem of learning a language by practice or of appreciation receives no consideration under any of these methods. Translation into Sanskrit again leaves much to be desired ; the teacher dictates and the boys take down and learn the passage by heart. In such answers (even of advanced pupils) as बाढः गच्छति ; हितः मित्रम्, रामं धनं यच्छति, we get an indication of the wrong method used. If the pupil had heard any of these forms from the mouth of the teacher or had used them in speech himself, he could never have given these answers.

Two points are now clear : the way through grammar has missed both grammar and literature, and the medium of translation has closed the gate to the appreciation of what is read.

The way through *language*, therefore, is the most effective for our purpose. This may be called the Direct Method. Language is learnt by imitation and practice and *not* by going through the labyrinth of rules as to the form and use of each word. Nor do we, when speaking in English, translate each idea first and then express it ; if we did, we might find ourselves stumbling and stopping each moment.

In the study of language, idea-motor habits, which 'reserve attention to the thought or content', have to be formed and the Direct Method is the sure way to them. Translation is a hindrance. We do not teach the pupils to talk, but we 'talk to them to teach them'.

The following principles should guide us in our procedure :

General

(i) Our goal should be to teach the pupils to understand and appreciate the language.

(ii) To practice speech first ; reading and writing, second.

(iii) To create a thorough Sanskrit atmosphere throughout the Sanskrit hour'.

(iv) To exclude translation when explaining new matter.

(v) From examples met within the course of reading, to teach *inductively* the laws of the structure of the language, i.e. the *essentials* of grammar.

Specific

(i) The omission of the last stage from the teaching of English in many places has been the main cause of the cry against the method. The Direct Method expects the teacher not to talk aimlessly, but with the definite aim of teaching the structure of the language, inductively ; and expects him to follow rational methods in teaching the class how to read, how to spell, how to appreciate and how to imitate for self-expression or composition. In the case of Sanskrit, which is a language full of inflections, the *essential* points of grammar must be studied, but studied inductively ; and any modern book which overlooks this point will do greater harm than good.

(ii) Every lesson will be prefaced by a brief introduction in the form of talk on some object, model or picture (all of an oriental type) connected with the lesson. The picture may be quickly sketched on the blackboard by the teacher and need not be elaborate. Every lesson should be a connected whole, right from the beginning, and stories adapted from original Sanskrit works would be the best. After oral work, the teacher will read the lesson loudly and distinctly and ask the class to read it silently. Then he may ask them their difficulties and solve only those that form an obstacle in the pupil's way of forming a general idea of the lesson. Then he may explain each sentence, new words and phrases being explained by reference to his picture or by action. Translation should not ; as a rule, intervene, but it may supervene to test if the right idea has been formed.

(iii) Do not give any rules regarding the syntax, or other parts of grammar, unless they are absolutely necessary. Some books devote many pages to points which the pupil knows pretty well in reference to his vernacular ; so with the vocabulary. In the initial stages words that are common to Sanskrit and the boy's vernacular should be first introduced.

(iv) Present one difficulty at a time. Avoid all *sandhis* in the initial stages ; they should gradually be introduced in the course of conversation and then each type dealt with inductively.

(v) There is a difference between a Marathi pupil learning English and a similar pupil learning Sanskrit. So the devices employed in teaching the two languages must differ. In English the formation of an interrogative sentence or the use of prepositions and articles requires a kind of drill; but in Sanskrit the inflections form all the difficulty and it would be useless to ask pupils to form interrogatives, etc., which require no skill.

(vi) Determine carefully the order of lessons. The first lesson should occur just at the stage where the boy's vernacular ends and Sanskrit begins (*vide* Lesson 1 of the Sanskrit *Bhāṣhā Prakāśh*). Nouns, past participles and other adjectives ending in अ are the first to be introduced. It is *not* necessary to make the boy learn by heart any of the *pronouns*; some of the forms are seldom required. The most common forms are अहं, त्वं, सः—सा—तत्, इदम्, and they should be fixed by association with the context. Then follows the present tense, then the past, and lastly the imperative and the potential forms, combined with inflections of nouns ending in ई, उ, &c. The passives should be introduced as early as possible in the course of conversation, e.g. अपि प्रविश्यतां मय ? प्राविश्यताम्, उपविश्यताम्, उत्थीयताम्, and so on. The order followed in the Sanskrit *Bhāṣhā Prakāśh* is the safe one to follow both for conversation and the inductive development of grammar. Some books mix up First, Fifth and Seventh Conjugations in a single lesson, which is not desirable, as it encourages guess work and obstructs the process of true induction.

(vii) Teach only as much grammar as is of *frequent* occurrence in *standard* literature; e.g. duals, the imperative first person, and most of the cardinals and ordinals are seldom in demand.

(viii) Loud reading, recitation and dramatization should form a special feature of the new method. 'No impression without expression', goes the maxim. The pupil should be given ample opportunity for oral and written composition. All reading should aim at appreciation and imitation.

(ix) Courses, examinations, teachers, age of pupils, &c.—The first year's course should be of the type covered by the Sanskrit *Bhāṣhā Prakāśh*. The second year's text should introduce the pupil to *all* the essentials of grammar on the concentric method, by presenting them in lessons *adapted* from original Sanskrit works. The third and fourth year's course should be divided into two branches: Literature and Grammar. Fifty pages from prose (of original Sanskrit) and five cantos of the *Raghuvamśa* or a similar work and select portions of the *Kaumudī* (as given in Desai's *Sanskrit Pravesh*) for the third year. And for the fourth year, a play like *Śakuntalā* and about 500 verses from the *Ramayana* or the *Mahābhārata* and more selections from the *Kaumudī* make a fairly good plan.

The difficulty of teachers need not deter us from accepting the new principles. A trained graduate (with Sanskrit as his special subject) may after a little preparation pick up the method. He may rise with his class year after year, another teacher watching his method and taking the lower classes. Shāstris might also be persuaded to undergo a training in the method.

Our university and other public examinations need to be overhauled so as to admit the principles of appreciation and self-expression.

Sanskrit may be taught at any age after the pupil has finished his Vernacular Standard IV. But if English is studied first, as in our high schools, he should not begin it until the completion of Standard III. Primary school teachers ought to undergo a year's course in Sanskrit by the new method to be really able to teach efficiently the full course in the vernacular.

G. A. JAMBALE

NATURE STUDY IN INDIA

I. Birds

WHERE the field of choice is so large, it is difficult indeed to know where to begin. But midway between the splendid and terrible beasts of prey and the dignified elephant, on the one hand, and the passive beauty of the flowers and trees on the other, come those lovely creatures, wild, yet willing to be familiar, the birds: and with these I think I shall begin my series of friendly talks with teachers in India.

Since many teachers have had little opportunity of becoming acquainted with either the English or the scientific names of Indian birds, I shall take my examples from Mr. Dewar's *Birds of An Indian Village*, as he not only describes them in such a way that no one could fail to tell the bird when seen, but also gives the vernacular names.

Suppose, then, that the *Nilkant*, Blue Roller, the common Myna or *Desi Maina* and the *Hud-Hud*, Hoopoe, are all commonly seen in the neighbourhood of your school—and it is very unlikely for them *not* to be!—how shall you make sure that your pupils shall not only know the names of these birds but know *about* them, care for them, wish to treat them kindly and preserve them from injury—all of which should be involved in 'to know' a living creature.

LESSON I

In the first lesson, you will prepare your class to find out all they can next time they see any bird: for many people see with their eyes without seeing with their wits—as I am sure you will have noticed. I am going to show the kind of questions I might ask; but of course you will make your own.

'Have any of you any fowls, *murghi*? Tell me how they differ from dogs or cats. (They go on two legs, they have wings instead of front legs, they are covered with feathers instead of fur, they lay eggs.) Yes, and any animal like this is called a *bird*: but be careful if only one of these things is true.' [Distinguish from bats, which have wings, but do not lay eggs and are covered with fur.]

Now find out which *wild* birds your pupils can name and describe. Put up on the blackboard their names and select a few words about each, just enough to identify them. [If your pupils can write well, let each have a special little 'Bird Notes' book, and put in it what you write on the board.] Take sympathetically every attempt at an answer, but

only record a few, those birds that are best described, common in your district, and easily distinguished. I will take the three I named first, as examples of striking-looking birds. Another good plan would be to take a little bird (e.g. *guariya*), a big bird, *chil* or *gidh*, and a middle-sized bird, *hud-hud* or *maina*.

BLACKBOARD

Nilkant.—Rather big; colour, blue and brown; loud, ugly cry.

Maina.—Middle-sized; chiefly dark brown; squeaky call like ‘Chowki-chowki-chowkidar!’

Hud-Hud.—Middle-sized; black and white and chestnut-brown, with a large fine beak and a crest; says, ‘Hudhud.’

When you have made sure that every one has learnt, or written down, just enough to make them recognise these three (or any other three, or up to half-a-dozen—but not *more*, and not only *one*), tell them to watch for these birds every day for the next week, and see how much more they can tell about them next time, and to write down in their books what they find out.

Meanwhile, in addition to making your own observations, get or prepare pictures of the three birds; and if you are not able to do better, make rough enlarged outline copies of the illustrations in Mr. Dewar’s, or some other book, colouring them as well as you can. Never be content not to have pictures; if they are poor ones, encourage the children to say how the real creatures differ from them.

LESSON II

Don’t put up the pictures beforehand. Get everything your class has to say first, then put them up and compare with their reports. Always remember that the real *Nature Study* is the out-of-doors observation: what you do in the class-room can only be *preparation* for the real thing, or *systematizing* your pupils’ knowledge and putting them in a position to gain more for themselves.

Moreover, you need not attempt to get an equal amount of work out of every member of the class, as you should, of course, in testing a prepared lesson in history or literature; for both powers and opportunities will vary greatly.

Accept then, gladly, everything that the eager students have to offer, only making sure that everyone who wants to has a chance to contribute: note those who fail to add a share, and at the end of the lesson set some easy problems for everybody to find the answers to for next time—such as ‘Find three birds that hop and three that walk’; ‘What birds have tails as long as their bodies?’ etc.

At the end of your half-hour’s talk, put up the pictures, fill in with

their help any gaps that the descriptions have left; if you like, read Mr. Dewar's account of some *one* of the birds, but don't let your pupils have the book to read till they have worked for some time at birds, or they may substitute learning it by heart for out-of-doors work.

Begin to plan the observations into: When and where seen? How big? What colours? What they were doing (e.g. how they flew, how they walked or hopped, what food they were getting). What song or cry they make? If it is the breeding season, nests and eggs and young may be described; if not, warn your pupils to try to find these when the night-time comes, but to remember that birds don't like to be watched too closely when breeding. Suggest that cocks and hens aren't quite alike; what about other birds? [*Nilkant*, male and female, Mr. Dewar says, are alike; *hud-hud* and *maina* show enough difference to distinguish, but are not so easy as many others—sparrow, for example.]

Preparation for Next Lesson. Suggest that they choose a big bird, a little one, and a middle-sized one, from among those they have noticed during the week. Suppose these are *chil*; kingcrow (*bhuchanga*, but I know it as *kotwal*); and sparrow; *gauriya*.

Next time we will work out the lines on which to plan the lesson to which your pupils bring their observations on these birds.

M. R. N. HOLMER

DOMESTIC SCIENCE

I. What Domestic Science Is, and what It Aims At

By the term 'Domestic Science' we mean a scientific and practical study of all matters relating to the management of a home. The management of a home is a complicated art, involving a study of food, clothing, textiles, the house, and garden, health and the care of children, and is based on a knowledge of certain truths culled from many different branches of science: (1) biology, the study of the physical life of animals and plants; (2) anatomy, the study of the structure of the body; (3) physiology, the study of the functions of the different parts of the body; (4) hygiene, the study of how to keep the body in health; (5) sanitation, the study of how to secure and maintain healthy conditions in the home and locality; (6) medicine, the study of how to restore health; (7) psychology, the study of the human mind; (8) physics, the study of matter and its manifestations; (9) chemistry, the study of the changes undergone by matter; (10) mathematics, the study of space, numbers and calculations. Certain truths of (1) ethics, the study of the principles of conduct; of (2) economics, the study of the material prosperity of the country; and of (3) sociology, the study of the nature of human society, also have their part in a wide study of the subject. The practical arts studied are cooking, needle-work, laundry-work, household repairing, household cleaning and home management, with the elements of gardening, sick nursing and the bringing up of children.

The fact that domestic science depends on so many branches of science has led those who have not studied the matter carefully to regard it as a mere conglomeration of disconnected facts, as a 'thing of shreds and patches' unfit for a subject of serious study by school and college students. This is not so. Domestic science does indeed take from other sciences whatever it needs, but *the central unifying idea of the home as a place of health, beauty and service* determines the selection, and presents in the end a new entity. The sister science of agriculture offers perhaps the closest analogy. It also is an art and a science aiming at some definite practical end of its own and borrowing truths from many branches of science, while at the same time it is a new, distinct and definite whole, and is considered not only fit for a degree course, but also worthy of having colleges specially devoted to its study. The aim of a scientific study of agriculture is to enable the agriculturist by scientific methods to eliminate waste—in his case, of land and of economic products—and to make the best of his acres. The aim of a scientific

study of the home is to enable the housewife, by scientific methods, to eliminate waste of human life, energy and health, and to make the best of her home. Improvements in agriculture are of enormous importance to the country as a whole, and involve the happiness and prosperity of thousands of agriculturists. Improvements in home conditions are of yet greater importance to the country as a whole, involving as they do the health and happiness of millions of homes, including those of the aforesaid agriculturists. The need for a study of domestic science and for an improvement in the conditions of the average home will be admitted by all, except perhaps by a few who, enjoying healthy and comfortable conditions themselves, have not eyes to see, or imagination to realise, how the conditions of living enjoyed by the vast majority—including the average well-to-do family—both need, and are capable of, improvement.

II. How Domestic Science came to be a School and College Subject

In former days, when only the small minority of girls took education seriously, the arts of the household were learnt at home in a practical way, under the care of the mother. Girls would do their share of house cleaning, cooking, cloth making, mending and washing, and looking after young children. But when they took to going regularly to school and studying hard, the mothers' lost the help of their daughters and the daughters their mothers' practical instruction in domestic work. When the Girls' Public Day School Company—which for many years controlled the larger number of the early high schools for girls in England—realised that girls attending school every day would grow up ignorant of the management of a home, they decided that Saturday should be kept as a holiday, so that the girls might have the opportunity of helping their mothers and making good this deficiency. But their intentions were in most cases frustrated. Both mothers and daughters generally preferred that Saturday—what was left of it after preparation for home-work for Monday—should be devoted to outdoor exercise, and to tuition in such subjects as music or painting.

To supply the need for instruction in domestic work, private teachers or technical institutes next (as they do still) gave for girls who had left school courses in such subjects as dressmaking, cooking, and first-aid, so as to prepare them for their future home life, while for well-to-do girls what we might call private Residential Home Colleges in the country offered a practical training in home arts. But all such courses touched only a fringe of the problem—how to give girls generally a useful education for home life. The high schools at last took the matter up and employed teachers of domestic subjects, who, having no university degree—universities at that time not recognising

their work as science—were regarded as somewhat inferior, both in grade and status, to the rest of the staff. Gradually, as it was realised that their work depended on scientific principles and could be made as educative as other subjects in the curriculum, some universities, America leading the way, established domestic science courses and, finally, included domestic science as a branch of science leading to a degree, teachers holding such degrees ranking in every way as other graduates.

In India the course of development has been somewhat similar to that in the West.

The little girl at home would begin practical household work under her own mother's eye, to be transferred after marriage to the care and guidance of a mother-in-law. In many of the old joint-family households, when means and space were not wanting, a very thorough and liberal course in domestic arts was given by a good mother-in-law to the young wives of her sons. But where the mother-in-law was not proficient, or where poverty and cramped conditions—especially in cities—prevailed, such education was apt to be incomplete; and though in most households much stress was laid on personal hygiene and on cooking, with the cleaning of cooking vessels, and on sweeping or washing the floor, other household arts such as sewing, laundry-work and hygienic household cleaning were often neglected.

The first schools to give instruction in domestic science in India were probably the convent, the railway, and the Anglo-Indian schools, in which schools girls were often prepared for the Cambridge Senior paper in this subject. In 1916 a very important phase in the education of Indian girls was inaugurated when Professor Karve opened the Indian Women's University, now known, through the generosity of the late Sir Vithaldas Damoderdas Thackersey, as the Shreemati Nathibai Damoderdas Thackersey Indian Women's University. The courses of study aimed at giving the girl a good general education and, at the same time, preparing her for her future home life. For the first time in India a study of health and the management of the home, and of the scientific principles underlying them, was put in the forefront of both the high school and college courses, being made compulsory throughout. In 1926 the University of Bombay allowed domestic science as an option for girls in place of physics and chemistry for matriculation. Benares University has gone further and allows it as an optional subject for both B.A. and B.Sc. Madras allows it as a subject for the L.T. We await now the inclusion of the subject in the degree course leading to the B.Sc. degree of all Indian universities and for the establishment, in connexion with each, of a

Home Arts College, where teachers can be trained under the best hygienic conditions and spread their health-giving culture throughout the schools of the land.

III. School and College Courses in Domestic Science

1. A Primary School course aims at awakening an interest in the keeping of a house clean and healthy, and satisfying the love of activity characteristic of children from 8 to 12 by letting them exercise some of it in the work of a house.

The little girl, on leaving her primary school or classes, should be able to :

- i. Sweep and dust a room, polish furniture, clean glass windows, brass vessels and ordinary cooking utensils; make a bed, arrange a cradle comfortably, and understand the importance of using a mosquito net.
- ii. Gin and clean cotton and spin coarse thread, wash and iron cotton clothes.
- iii. Cook rice, potatoes, *dal*, make *chappatis*, and *kanji*, boil milk, prepare *dahi*, and make tea.
- iv. Understand personal hygiene, apply simple first-aid, treat scorpion and wasp stings, clean heads, and treat simple itch.
- v. Cultivate a small plot and grow selected vegetables and flowering plants.
- vi. Make a pair of drawers, a *sadra* and a *polka*, a baby's frock, and useful articles such as bags and cushion covers, and knit or crochet a baby's bonnet and socks, and simple edgings.

She should be able to explain the reason for what she does. She should understand something about the different forms of matter and be able to give an account of different common substances, to make measurements of her classroom or garden, and to make calculations for materials needed, and their cost.

She should plan out on paper a model home, and, if possible, with cardboard or with materials prepared by herself, she should actually build a model house. If available, a simply-written guide-book giving necessary instructions and explanations should accompany the course, the whole of which should be very practical.

A room should, if possible, be given up to this work.

2. A High School course aims *primarily* at giving a girl such a practical acquaintance—based on a sound knowledge of scientific principles—with all ordinary forms and manifestations of life and matter, and their manipulation, as will enable her to face intelligently the many problems that will meet her in the management of a home should she be called upon to undertake such work immediately on leaving school ;

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household work *every* girl should in *every* case, whether in cooking, polishing furniture, taking out stains, ironing *polkas*, driving in screws, putting right dripping water-taps, attending to mosquito breeding places, cleaning lamps, etc., *herself* carry out the work. Only so will she be ready to attack in her own home different problems as they arise.

Working for an examination, whether as a part of a university entrance examination or as a single subject, is desirable, as giving an incentive to the girl to work in a systematic manner.

It is desirable that the whole course be spread over three years.

A suite of rooms, or a small practising house, if possible, should be given up to practical work.

Where feasible, visits should be made to mills, museums, hospitals, laundries, houses under construction, and child welfare centres.

3. A College course aims at giving students a preparation for life as home-makers, teachers of household science, social service workers, dietitians for hospitals, institutional administrators, or business women.

The courses of study for the degree of B.Sc. for the University of (i) London, (ii) Otago, New Zealand, and (iii) that of the degree of G.A. in the Indian Women's University are given below. They will serve to show the scope and standard of college courses.

1. THE UNIVERSITY OF LONDON

<i>First Year</i> ..	.. Physics. Chemistry. Biology. Household Work. Social and Economic History.
<i>Second Year</i> ..	.. Chemistry : Organic and Physics. Biology : General and Economic. Principles of Economics and Business Affairs. Physiology and Bio-Chemistry. Household Work. Hygiene. Bacteriology.
<i>Third Year</i> ..	.. Applied Chemistry. Kitchen Laboratory Work. Hygiene. Practical Hygiene, with Excursions. Attendance at Infant Welfare Centres. Physiology and Bio-Chemistry. Nutrition. Bacteriology. Additional Household Work for Teachers. Additional Household Work and Institutional Management for Administrators.

2. OTAGO UNIVERSITY

<i>First Year</i> Inorganic Chemistry. Organic Chemistry. Physics.
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		Foods : Technology of Cookery. House Administration. Business Affairs. Physical Education.
<i>Second Year..</i>	..	Biology. Applied Chemistry. Anatomy. Foods : Experimental Cookery. Clothing, Textiles, Garment Construction.
<i>Third Year ..</i>	..	Histology. Physiology. Applied Chemistry. Food, Nutrition, and Dietetics. Clothing : Laundering. Shelter, House-Planning, Construction. Furnishing : Housecraft. Sanitary Science and Bacteriology.
<i>Fourth Year..</i>	..	Household and Social Economics. Education or Option. Hygiene. Physical Education. Clothing : Dressmaking. House Management : Practice. Home Nursing. Infant Hospital Practice.

3. SHREEMATI NATHIBAI DAMODERDAS THACKERSEY INDIAN WOMEN'S UNIVERSITY

<i>First Year ..</i>	..	Elementary Biology. Physical and Chemical Properties. General Principles of Animal and Vegetable Physiology. Hygiene. Water Supply. Construction of the Dwelling House. Clothing Material. Meteorology.
<i>Second Year ..</i>	..	Elementary Biology. Human Physiology. Hygiene.
<i>Third Year ..</i>	..	Sociology. Psychology and Study of the Child Mind.

The college courses should include a large amount of practical work both in pure science and in household practice. In the London course more than half of the time is given up to such work.

iv. Domestic Science Teachers in India

Very little really satisfactory work in domestic science can be done in the schools until those who are to teach the subject are trained to deal with it in a thoroughly practical manner. It is at present extremely difficult to find such teachers, and there is a real danger that the subject will be taught as a bookish subject only.

All women in the primary training colleges should study at least up to the course outlined above for high schools. Only then can they undertake to train the children in the elementary schools along the lines proposed.

For the present, until trained domestic science teachers are available, ordinary science graduates should be employed in high schools with, if men, women teachers experienced in practical work to help them.

For the higher work of training graduates in this branch of science as soon as it is given the status of a degree, it seems that help must, for the beginning, be imported from the West, where the subject has been intensively studied for the last dozen years or so, or that a number of Indian women science graduates be sent to the West to specialize.

There is in India a wide field of work for the enthusiastic woman worker in domestic science. The aim should be to preserve as much as possible of the old Indian manner of living at its best, modified, where needed, by the teachings of modern science, chiefly in the realm of sanitation and bacteriology.

M. A. NEEDHAM

BOOK LISTS

I. English

These lists, which should prove valuable to teachers, have been carefully compiled to include books within the purchasing capacity of the ordinary teacher. The most expensive book is 10s. 6d. or (about) Rs. 7-4; the great majority are about a quarter of that price.

Cultural (Any volumes from the following series, according to the teacher's own preference) s. d.

<i>The World's Classics</i>	..	..	O.U.P.	each	2	0
<i>Everyman</i>	..	..	D.		2	0
<i>King's Treasuries</i>	..	..	D.		1	6
<i>The Teaching of English</i>			N.			
<i>Essays of To-day</i>	..		H.			
<i>One Act Plays</i>	..		H.			
<i>The Home University Library</i>			Williams & Norgate			
<i>English Men of Letters</i>	..		Mac.			

General

<i>The Uses of Poetry</i>	..	..	A. C. BRADLEY	O.U.P.	2	0
<i>Poetry and the Child</i>	..	..	J. DOVER WILSON	O.U.P.	2	0
<i>A Handbook of Modern English Metre</i>	..	..	J. B. MAYOR	C.U.P.	3	6
<i>Introduction to the Study of Literature</i>	..	..	W. H. HUDSON	H.	6	0
<i>On Expression</i>	..	..	J. GALSWORTHY	O.U.P.	2	6
<i>School Libraries</i>	..	..	J. H. FOWLER	O.U.P.	2	0
<i>The Art of Reading</i>	..	..	Q.	Mac.	5	0
<i>The Art of Writing</i>	..	..	Q.	Mac.	5	0

Reference

<i>The Concise Oxford Dictionary</i>	..	..	O.U.P.	7	6
<i>Thesaurus of English Words and Phrases</i>	..	ROGET	L.	7	6
<i>English Literature in Schools</i>	..	ENGLISH ASSOCIATION	O.U.P.	2	6
<i>Reference Library, English Language and Literature</i>	..	ENGLISH ASSOCIATION	O.U.P.	2	6

Anthologies

<i>The Oxford Book of English Verse</i>	..	..	O.U.P.	8	6
<i>The Oxford Book of Victorian Verse</i>	..	..	O.U.P.	8	6
<i>The Oxford Book of Ballads</i>	..	..	O.U.P.	8	6
<i>Poems of To-day First (Series)</i>	..	ENGLISH ASSOCIATION	Sidgwick & Jackson	3	6
<i>Poems of To-day (Second Series)</i>	..	ENGLISH ASSOCIATION	Sidgwick & Jackson	3	6
<i>The Bookman Treasury of Living Poets</i>	..	..	L.U.P.	7	0

Method

<i>The Scientific Study and Teaching of Languages</i>	..	PALMER	Hef.	10	6
<i>The Principles of Language Study</i>	..	PALMER	Hef.	3	6

Method (Continued)

<i>The Oral Method of Teaching Languages</i>	PALMER	Hef.	s. d. 5 0
<i>How to Teach a Foreign Language</i>	JESPERSEN		
<i>The Teaching of English in England</i> .. ..	..	H.M. Stationery Office	1 6
<i>Memorandum on the Teaching of English</i> .. ..	..	C.U.P.	2 6
<i>The Teaching of English</i>	TOMKINSON	O.U.P.	3 6
<i>The Teaching of English</i>	ROBERT AND BARTER	B.	2 6
<i>The Direct Teaching of English in Indian Schools</i>	WREN	L.	5 6
✓ <i>How to Teach Reading</i>	MARY E. PENNEL	H.	6 0
✓ <i>The Reading Lesson</i>	M. J. STEEL	A.	0 6
✓ <i>The Literature Lesson</i>	Prof. A. A. COCK	A.	0 6
✓ <i>The Lesson in Appreciation</i>	F. H. HAYWARD	Mac.	5 0
✓ <i>Training in Literary Appreciation</i>	PRITCHARD	H.	2 6
✓ <i>The Rudiments of Criticism</i>	E. A. GREENING	O.U.P.	3 6
✓ <i>Expression</i>	LAMBORN	O.U.P.	3 6
✓ <i>On the Teaching of Poetry</i>	E. A. GREENING	O.U.P.	3 6
✓ <i>The Composition Lesson</i>	LAMBORN	O.U.P.	3 6
✓ <i>How to Teach English Composition (2 vols.)</i>	ALEXANDER HADDOW	B.	2 6
✓ <i>A Guide to the Teaching of Manuscript Writing</i>	Prof. A. A. COCK	A.	0 6
✓ <i>English for the English</i>	FINCH	Evans Bros.	4 6
✓ <i>Poetry in the School</i>	S. A. GOLDS	B.	1 6
	G. SAMPSON	C.U.P.	2 6
	G. HUBERT JAGGER	L.U.P.	6 0

Phonetics and Speech

<i>An Outline of English Phonetics</i>	DANIEL JONES	Hef.	7 6
<i>Sounds of the Mother Tongue</i>	L. H. ALLISON	Black	2 6
<i>Standard Speech and English Practice—1</i>	DREW	B.	0 9
<i>Standard Speech and English Practice—2</i>	DREW	B.	0 9
<i>Standard Speech and English Practice (Teacher's book)</i>	DREW	B.	2 6
<i>Defects of Speech</i>	I. C. WARD	D.	2 6
<i>Correction of Speech Defects</i>	H. M. PEPPARD	Mac.	6 0
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 Cambridge University Press; L.U.P.: London University Press.

A. B. H. J. RUSTOMJEE

REVIEW

The Technique of Examining Children. By B. C. WALLIS. Macmillan & Co. Pp. 135. Price 3s. 6d.

There is no subject of greater concern to the student world of India, except that of mere living, than *examinations*. It is because examinations and provision for mere living have been so closely associated in India that examinations have come to assume such exaggerated importance. We think in terms of examinations rather than in terms of education, or spirit, or life. If we must accept the situation as it is, we can at least consider whether it is not possible to make examinations of greater educational value than they have ever been in the past, and to bring examining into closer relationship with the vital needs of the country.

Few people realize that examining is a complex business, requiring something more than a knowledge of the subject-matter of the examination. As teaching, if it is real teaching, requires a knowledge of the technique of teaching, so examining requires a knowledge of the technique of examining. But in this world there are many amateurs, few experts, and the amateur is always sufficient unto himself. It is too much to hope for, but something devoutly to be wished, that every examiner should have read at least two books that have recently appeared on examining. One of these books is Ballard's *New Examiner*, and the other Wallis's *Technique of Examining Children*. Dr. Ballard deals primarily with intelligent, paper-setting—and who will not agree that radical changes are not necessary in that regard? Mr. Wallis is concerned rather with answers to examination questions and with the technique of marking and assessing them. His main thesis is that 'examining is an exacting business, carried through at high pressure during a limited time,' and that it is the duty of the examiner, if he values justice, to perfect his technique. Now the essence of examination is measurement—measurement according to some fixed standard, free from personal bias and prejudice. As Dr. Ballard puts it, 'An examiner should be as free from bias as a pint pot.' The old examination was a function of many variables, not the least of them being the idiosyncrasies of the examiners. To know the examiner's 'pet ideas' was part of the game. The new examination seeks to eliminate this subjective element altogether. A counsel of perfection, if you like, but certainly to be desired! Mr. Wallis puts his cardinal principle thus: 'The examiner is concerned solely with the relative

merits shown in the scripts he deals with. He is concerned with the quality of the questions singly or together. He is not concerned with the candidates' teaching. In fact, the examiner is a machine.' There is this difference, however—that the products of the machine are not invariable. In Chapter VII the author raises a question which ought to receive the fullest consideration from examining bodies in India. Should the 'standard' be prefixed or should it be adjustable? He rightly claims that the prefixed standard is unfair, because it takes no account of variations in the difficulty of examination papers. He makes a plea for replacing the arbitrary fixed standard by the average performance of the candidates as a whole. The method briefly is this: A fair paper is set; the answers are marked strictly in accordance with certain rational standards. When the results are totalled, the pass mark is struck. All above that mark pass; all below it fail. There is no reconsideration or future compromise. We commend this method to educationists in India. It would at least put an end to the iniquitous practice of giving 'grace marks,' which seems to be almost universal in India. The practice of gracing candidates is a confession of incompetence and is morally indefensible. In Chapter VIII the author has something useful to say on the evaluation of essays, but his remarks apply equally well to other subjects. He really wants to force examiners to pay some respect to the law of distribution or the frequency law. This law may be illustrated thus: If 10 marks are assigned for an essay, there should be about as many getting 2 marks as 8, about as many getting 3 marks as 7, and 4 as 6. Most candidates will get 4, 5 or 6. The present reviewer has occasionally drawn the frequency array of certain public examinations, with interesting results. The 'favourite marks' of the examiners were 2 and 5! In Chapter IX the author pleads for a recognition of mathematical ability untrammelled by orthodox statements and methods. Among these methods he includes the use of algebraic methods for solving problems which can easily be solved by arithmetical insight. We agree that inductive insight should be accepted in preference to any mechanical method, but we have not found discouraging results in teaching children to use algebraic methods; quite the reverse. The book has a valuable appendix of specimen examination papers, which are practical, sensible and useful. We commend this book to all who have to do with examining children.

BOOKS RECEIVED

- Education for a Changing Civilisation.* By W. H. KILPATRICK.
Macmillan & Co. Pp. 142. Price, 4s. 6d.
The Field Readers. Books I to VI. Ginn & Co.
The Field Readers. Teachers' Manual. Ginn & Co.

The New Beacon Readers. Books I to VI and Supplementary Books.
Ginn & Co.

The New Beacon Readers. Teachers' Manual. Ginn & Co.

Constructive Hints in the Early Stages of Teaching Reading. By
GRASSAM and MORSS. Ginn & Co. Pp. 44. Price, 1s.

PUBLISHERS' NOTE

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TEACHING

A QUARTERLY TECHNICAL JOURNAL FOR TEACHERS

Editor : - - H. R. HAMLEY

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No. 2

AN UNAMBITIOUS DALTON PLAN

PUPILS vary widely in their abilities. For the extreme deviations special schools are provided (in European countries), but the normal children are grouped together in the common schools and are treated as if they were homogeneous. A closer examination will show that these children are not by any means so homogeneous as their treatment might suggest.

Education has two functions :

1. To produce such uniformity as will render a child a convenient social unit.
2. To discover and develop such individuality that each child may serve society as a specialized unit.

Present-day schools fulfil the first function ; but they tend to neglect the second.

Origin of the Dalton Plan

Miss Helen Parkhurst, an American woman, was the originator of the Dalton Plan, but much was done towards its improvement and popularization by Miss Basset (of Streatham County School), by Mr. Lynch (of West Green) and by other English teachers.

Features

The Dalton Plan has been described as an application of the Montessori system to the higher classes. The formal lesson and the set time-table are done away with. 'Assignments' are given in each subject covering approximately one month's work, divided into four units which should occupy approximately one week. These assignments set out the work to be done, indicate the method of study to be used, and annotate any special difficulties likely to be encountered. A room is set apart for each subject (not, as

usual, for each class). The child may decide for himself what subject he will study at any given time. Having decided, he goes to the 'Laboratory' devoted to that subject, where he will find the teacher of that subject and all relevant books and apparatus. On completing one unit of the assignment, he shows his work to the teacher, and may also be examined on it; if his work is satisfactory he is noted as having completed the unit. This note is made in the student's 'Progress Card' and in the teacher's register.

Set lessons or lectures are arranged occasionally, to deal with any special points which seem to demand formal class teaching.

Children who finish their assignments before the end of the month are allowed to devote their time to any special studies or occupations which they may select.

The Difficulties Experienced in Applying this system in India

Certain difficulties are inherent in the plan, and are experienced in all countries and in all types of school.

A. (1) The teacher tends to become overwhelmed with corrections.

(2) The pupils tend to make voluminous notes which they do not mentally digest.

The backward pupils tend to be overworked, or to become discouraged and get left behind.

Other difficulties are more peculiar to this country.

B. (1) One great merit of the plan in England lies in its encouragement of outside reading, especially in such subjects as history and geography. Such reading-material is very rare in the Indian vernaculars, and the boys are unable to follow the suitable English books.

(2) The English Secondary school comes after an effective system of elementary education, and its pupils are pre-selected. Owing to the inadequacy of the teaching in Indian Primary schools the Indian High school is used as a general system of education for almost all classes, and includes an unselected sampling of nearly the whole range of intelligence. As a result, the 'scatter' of the pupils' work is far greater. An experiment was made on this point in Dacca; for two months every boy in one class was allowed to work at his own rate. The result was that some boys got over one month ahead, while others dropped one month behind the assignments.

(3) Punctuality is not a chosen virtue of the east, and even those pupils who can keep their work up to time do not often realize the importance of doing so.

(4) In a foreign medium it is easier to make notes than it is to absorb ideas. Consequently the tendency mentioned under heading A (2) above is much exaggerated. Vast volumes of notes are produced, so badly

and carelessly written that any one of them would take the teacher almost as long to correct as the boy took to write it. Moreover, the size of the notes bears no relationship to the knowledge of the pupil; or even an 'inverse correlation' may be observable.

(5) The learning of a foreign language is an even more important subject in the Indian High school than it is in the English Secondary school. This subject is one which is amenable to Dalton methods only in a very limited degree.

The Merit of the Dalton Plan

The tradition of teaching in India tends towards the lecture, with the pupils sitting as passive receptacles. The extreme opposite of this is the Correspondence Course, where the activity is almost entirely on the part of the pupil, the teacher being a mere absentee corrector of exercises. The Correspondence College (admirable as its system is) is better suited to adults than to children. The Dalton Plan is, as it were, a cross between a Correspondence College and a School. If well-organized it may have the merits of both, and the defects of neither.

The Dalton Plan, in its original purity, leans perhaps too much towards the Correspondence College; it leaves rather too much to the initiative of the pupil—especially as regards this country. Moreover, the Dalton Plan, in its original form, involves drastic changes in the routine and organization of the school, which come as a shock to the ultra-conservative mind of the Indian schoolmaster. (In America and in England schoolmasters are more used to novelty—and are less at the mercy of the prejudices of the parents of their pupils than is the headmaster of an Indian aided High school.)

In adapting the Plan to India it is necessary, while retaining the essence, to make as few as possible changes in the existing outward forms, and such changes as are made should not be *Ne novo* innovations, but should rather grow naturally out of things which exist already.

An Unambitious Dalton Plan

Now the essence of the Dalton Plan is that the boy should be taught to work by himself, to learn for himself. This involves two things, viz., (i) instructing children in the class in methods of study, and (ii) the organization of home-work.

At present boys do home-work, but this home-work is, as a rule, badly done; and about one quarter of the boys are defaulters. Under the existing conditions the proportion of self-guided work to oral teaching is about $\frac{1}{3}$ to 1 in most subjects. (In mathematics the proportion is higher—perhaps 2 to 1.)

Our object is to make the proportion of self-guided study as high as possible.

The first thing to do is to put the home-work on a proper footing. We must first ensure that the amount set is reasonable, otherwise we cannot well insist on its fulfilment. At present on some days all the teachers set home-work, and on others none do. This suggests a Time-table of Home-work.

A Time-table of Home-work

CLASS VIII. TOTAL TIME 2 HOURS. 40 MINUTES EACH SUBJECT

MONDAY	1 English Prose	2 Arithmetic	3 Optional*
TUESDAY	English Poetry	Vernacular (Prose)	Geography
WEDNESDAY ..	English Translation, V-E	History	Algebra
THURSDAY ..	English Grammar	Vernacular	Geography
FRIDAY	English Composition	Geometry	Vernacular (Poetry)
SATURDAY ..	History	Optional*	Translation, E-V

N.B.—For detailed discussion, see *Indian School Management and Inspection*, pp. 70-71. K. & J. Cooper & Co., Bombay.

CLASS IV. TOTAL TIME 1½ HOURS. 30 MINUTES EACH SUBJECT

MONDAY	1 English	2 Arithmetic	3 Handwriting
TUESDAY	English	Vernacular	Geography
WEDNESDAY ..	English	Arithmetic	History
THURSDAY ..	English	Vernacular	Geography
FRIDAY	English	Arithmetic	Vernacular
SATURDAY ..	English	History	Handwriting

* Includes Classical Languages and Science.

We may now take steps to ensure regularity of submission of home-work. Any boy who has not brought his home-work is put into the Detention Class to do it there.

Supervized Study

It is unreasonable to expect a boy to do his self-guided study on the right lines without any training or assistance. Teachers are guided in their work by Lesson Notes ; pupils should be guided in their self-directed study by what are called Assignments. These assignments are put up on the notice board, or are printed and circulated. They may also be given verbally. (This depends on the circumstances of school.)

If the proportion of boys' work to oral teaching work is to be made as high as possible, say 2 to 1 or 3 to 1, it follows that the time devoted to home-work will not suffice. We must set aside some periods of school time also for supervized study.

A TIME-TABLE INCLUDING SUPERVIZED STUDY

	FORMAL LESSONS			PREPARATION OR FREE-STUDY		
	1	2	3	4	5	6
MONDAY	English	Mathematics	Optional Subject	English	English	Detention
TUESDAY	Do.	Vernacular	Geography	Mathematics	Mathematics	Do
WEDNESDAY	Do.	Mathematics	History	Vernacular	Vernacular	Do
THURSDAY	Do.	Vernacular	Geography	History	History and Optional Subject alternately	Do
FRIDAY	Do.	Mathematics	Vernacular	Geography	Geography Optional Subject alternately	Do
SATURDAY	Do.	History	Optional Subject	English		

Explanation

(1) The teacher gives formal lessons on the lines indicated in the fortnightly assignments. The boys do work on these assignments at home as a preparation for the lessons. This work is sometimes written work, but not always.

(2) The boys do written work as set in the assignments during the preparation or free-study periods under the supervision of teachers. They may, if they so desire, allow a portion of the formal lesson periods to be devoted to written work also.

(3) The teachers check written work and sign it up. It is not ordinarily marked.

(4) Home-work is set on what is done in the class from day to day. This work is invariably marked.

(5) The Detention Class is held every day in the last period, when the defaulters are made to do the home-work under supervision. Any boy who has done bad work during the day, or has otherwise misbehaved, may also be put in detention.

(6) Free-periods intended for English and vernacular may be used by pupils for any branch of those subjects, e.g. text, grammar or composition, to finish the assignment.

It will be noticed that drill and drawing have not been included in the time-table. The reason is that Classes III and IV are let off in the last period, and drill is done by them in the 5th period twice a week for 30 minutes each day. As regards other classes, those who live far away from school do their drill immediately after school, and those who live near come to the drill class at 5.30 or 6 p.m., according to a time-table.

As to drawing, the following arrangements are suggested:

Class III	Two periods to be substituted for history.
Class IV	for optional subject.
Class V	
Class VI	
Class VII	One period „ for optional subject or English.
Class VIII	One period to be substituted for English.

The abstract of the above time-table is given below :

AL LESSONS				FREE STUDY PERIODS			
English	..	..	Periods 6	English	..	..	Periods 3
Mathematics	..	..	„ 3	Mathematics	..	..	„ 2
Vernacular	..	..	„ 3	Vernacular	..	..	„ 2
History	..	..	„ 2	History	..	..	„ 1½
Geography	..	..	„ 2	Geography	..	..	„ 1½
Optional Subject	..	..	„ 2	Optional Subject	..	..	„ 1
			Total 18				Total 11
Detention	..	..	5 Periods				

The Dalton Time-table for an Advanced Type of School

Those that want to keep to the original form of the Dalton Plan without much departure may try the plan as modified and worked in the Armenitola Government High School, Dacca, and the Hindu School, Calcutta. But this Plan is not in our opinion so generally applicable as the Unambitious Dalton Plan. For details of this kind of modified Dalton Plan, see *Principles of Teaching*, Teachers' College Dacca, pp. 130-32 (1928).

GURUBANDHU BHATTACHARYA

THE APPRECIATION OF ENGLISH POETRY IN INDIAN SCHOOLS

MUCH might be written against the teaching of English poetry in Indian Secondary schools and, possibly, with the progress of educational psychology towards a more scientific, objective outlook, much will be written. The educational psychology of literary and musical appreciation is still in its infancy, but, with the rapid progress that is now being made in experimental, objective psychology in general, we may expect that sooner or later there will come into existence a body of verifiable data which, when applied to education in India, will declare itself as opposed to the study of English poetry by Indian boys and girls in Secondary schools. If it does not go to that extreme, it will most probably differentiate between the study of English poetry in English schools and the study of English poetry in Indian schools.

Even with the incomplete knowledge available to us at present, the contention may reasonably be made that poetry is essentially music, and that, as the rhythm of Indian music is radically different from the rhythm of English music, the musical rhythm and metre of English verse are beyond the appreciation of Indian students. That I believe to be true of south India. And whether the musical charm of English words can ever be brought within the range of appreciation of Indian boys and girls in Secondary schools to an extent commensurate with the time and labour given to the study of English literature is, to say the least, doubtful.

Again, granting that the Indian student may be expected to reach a sense of what in English constitutes style—clearness, force and beauty—it will be agreed that this can be built up only on the basis of a practical, working command of English. ‘To aim at literature is to miss the way to language. To aim at language is to pave the way to literature.’¹ ‘This means shifting the centre of gravity of language teaching to the aim of giving one’s pupils first and foremost the command of the language as a means of self-expression, to serve as a basis for the study of its literature and structure.’² If it is true that the teaching of English in India fails to produce a reasonably adequate command of the language in the pupil—and examiners say so—it would appear to follow that the study of English literature as such should come at a later stage of education than the Secondary school.

Lastly, it may be asserted that the main justification for the study of poetry is that it is one of the most valuable means of developing the

¹ Wyatt, *The Teaching of English in India*, Oxford University Press, p. 8; also Chap. xi.

² Circular 797 of the Board of Education (England), pp. 35, 36.

æsthetic sense of the students, their joy in beauty, and that this can be achieved only or best through the medium of the poetry of the mother tongue.

More might be said upon this question. It might be said that to expect the Indian teacher to teach English poetry is to expect him to perform a task beyond his strength and the nature of which he does not understand.¹

But, as we are reminded in the Editorial of the first number, *Teaching* is a journal for the practical teacher. The practical teacher may or may not be interested in forecasts of the future, but he is certainly interested in the present. And in the present he has to teach English poetry and his pupils have to study it.

The purpose of this article is to help the teacher towards an understanding of the aims of teaching English poetry, and to indicate as precisely as possible a practical mode of teaching procedure calculated to lead to the achievement of those aims. The latter presents a task by no means easy; for it is held in many quarters that there is no definite method that ought to be employed in the teaching of poetry.

Speaking generally, it may be said that the teaching of English poetry in India differs little from the teaching of prose. Poetry is regarded, for the purposes of teaching procedure, as a difficult kind of prose, with special difficulties of grammatical construction and subject matter. It is the business of the poetry lesson to straighten out the difficult grammatical constructions, and to make clear to the pupils the difficult subject matter. And so the teaching of poetry is concerned largely with the minute examination and annotation of words and phrases, the rendering in prose of the language and thought of the poem. These, together with the conventional discussion of historical details of the poet and poem, make up the ordinary poetry lesson.

Now these devices may, and often must, be employed. But they serve no purpose, they are indeed calculated to implant in the pupil a distaste for poetry unless they are regarded, not as an end in themselves, but as a means to help the pupil to appreciate the poem.

What is this appreciation—a word which is becoming increasingly common in the discussion of matters pertaining to the æsthetic training of boys and girls in the west? Or rather, what is appreciation as applied to the study of English poetry in Indian schools? The answer is perhaps not quite as straightforward as it may appear to many.

We have suggested above that the musical rhythm of English verse and the music of English words are beyond the reach of the Indian student at the Secondary school stage. But poetry is also

¹ Wyatt, *op. cit.*, p. 125.

beauty, beauty of thought, mood or feeling. That beauty is as accessible to the Indian student as to the Englishman. To deprive the Indian student of English poetry would be to deprive him of one—perhaps the one—means of coming into contact with beauty. Therein lies the real justification for the study of English poetry in Indian Secondary schools. The poetry lesson that does not leave the pupil with some insight into the delightful or the beautiful that is portrayed in the poem, some heightening of the emotions, some lifting of the soul towards the spiritual, is a lesson that has missed its aim. That is the primary meaning of appreciation.

But that is not all. In the poetry lesson as it is at present conducted, the attention of the pupils is concentrated, not on the words of the poem, but on their prose equivalents. That statement might be made of the teaching of prose: the prose lesson in most schools is occupied too largely with the meanings of words instead of with the words themselves. It may be applied with greater force to the teaching of poetry. Preoccupied in disentangling the intricacy and obscurity of language and structure, and in trying to catch the thought or motive depicted in the poem, the words of the poet are lost sight of, or at best receive but scant attention. Appreciation seeks to reverse the process, and to direct the attention of the student to the beautiful words of the poem. For the words of the poem were written, not to be annotated and converted into prose, but to be read and studied for their intrinsic beauty. That completes the meaning of appreciation. The reader may see for himself how far this connotation is realized in the lessons appended to this article.

But, again, the practical teacher will insist that public examinations require that the pupil should be able to express in his own words, in the language of prose, the meaning and significance of poetic words, sentences, and stanzas. This article is written in the belief that in the teaching of English poetry in Indian schools it is possible to combine the practical and the ideal—to prepare the pupil for examinations and, at the same time, to lead him to appreciate the beauty and nobility of English poetry.

* * * * *

In the following notes an attempt is made to analyze the two lessons accompanying this article. The first is on Laurence Binyon's *For the Fallen* set for the Bombay Secondary School Leaving Certificate examination of 1929, and the second on Wordsworth's *By the Sea* set for the corresponding Madras examination of 1929.

(N.B.—In the teaching notes the words without brackets are the words of the teacher to the pupil, in round brackets those of the pupil to the teacher, and in square brackets of the writer to the teacher.)

(1) In the lessons no attempt is made to explain the meaning of difficult words, phrases, grammatical constructions. That is a matter which can be left to the teacher. It is necessary, however, to remind the teacher that the study of the poem should not start with the explanations of words and grammatical forms which the pupil may find difficult. To give explanations a separate place in the lesson is to take them out of their context and thus to add to their difficulty. Explain if, and when, necessary and explain in the course of studying the poem.

(2) It will be noticed that reading is suggested not only before the study of the stanza or poem is taken up, but at various points in the lesson. What has to be remembered here is that a poem is not primarily a written thing, but sound; it is for the ear and not for the eye, it is sound and not sight; great literature cannot be appreciated unless it is read aloud. The teacher can best help the pupil to understand the spirit of the poem by reading it aloud to him. But avoid the perfunctory manner in which poetry is read in most schools. The teacher should live the poem while he reads it; the emotions of the poem should thrill him and live in his voice. Read the poem, and read it again and again till the pupils know it, and you will have accomplished the first and most important part of your work—to make the pupils love the beautiful thing. At the same time, avoid exaggerated or affected expression. The pupils should read not at the beginning of the lesson but only after they have studied the stanza or poem; they cannot be expected to read expressively unless they understand and appreciate what they are reading. That understanding comes only after study.

(3) An examination of the teaching notes will show that the study of a poem falls into two parts, although these parts are intermixed in the actual teaching. In one, the pupil's attention is concentrated on the words of the poem—he is led to appreciate it. In the other, the aim is to lead the pupil to express the language and thought of the poem in his own words. Let the teacher bear this clearly in mind, and remember that the latter part as a method of teaching English poetry is an incomplete, imperfect method.

(4) The teacher is asked to study closely the method by which the pupil is led to appreciate the poem. Go straight to the heart of the poem, that which set the poet writing: the beautiful scene or story or idea. Let the pupils pick out the words, phrases, sentences, lines which express the scene or thought; let them concentrate attention on these words; let them remember them, for they are delightful, beautiful words. And—what is not practised in the teaching notes—let the pupils bring their appreciation of the language of a poem to bear on the study of other poems. For example, in the poem, *For the Fallen*, there is the

beautiful line 'Death august and royal sings sorrow up into immortal spheres'. In Tennyson's *The Passing of Arthur* there is the line, 'From them rose a cry that shiver'd to the tingling stars.' Let the pupils compare these words, and appreciate how the same scene is expressed by different poets. Let them compare the simple 'to the end, to the end, they remain', with the more ornate 'thou dost still immutably remain,' in Sarojini Naidu's *Imperial Delhi*. But apart from the possibility of applying knowledge acquired in one lesson to future lessons, such beautiful words as are dealt with in the teaching notes should be remembered, and remembered for life.

(5) The second and 'practical' aim of the teaching is to render into prose the words of the poem. If the teacher will analyze the teaching notes, he will see that the questions put to the pupils lead up to the paraphrase, that the paraphrase is first worked out piecemeal and then as a whole. It is a good practical method for the teacher first to work out the paraphrase and then to frame individual questions so that the answers lead up to the paraphrase. This means that the sequence of the lesson in respect of the prose rendering is the sequence of the previously prepared paraphrase.

For the Fallen

[Read the poem through.]

Introduction. [Tell the pupils that this is a poem about the soldiers who fought in the Great War for the Empire, and who are now dead.]

Reading. [Read the poem, pupils to listen with books closed. There are three motives from which the poem springs; we mourn for the dead, we are proud of them, we shall never forget them. Let these thoughts live in your voice as you read, read solemnly and mournfully, read proudly, read so that the pupils understand that the dead soldiers will always live in the memories of the living. Live the poem as you read it.]

VERSE 1

[Read again verse 1.]

With proud thanksgiving, a mother for her children,
 England mourns for her dead across the sea.
 Flesh of her flesh they were, spirit of her spirit,
 Fallen in the cause of the free.

Study. What does England do? (Mourns.) For whom? (The soldiers.) The poet speaks of the English nation as one family. What does he call England? Look at the first line. (A mother.) What does he call the soldiers? (Children.) Mention phrases in the first verse which show they were England's children. (Flesh of her flesh, spirit of her

spirit.) [Explain phrases if necessary.] Are the soldiers alive? (No, they are dead.) Where are they lying dead? (Across the sea.) Put that phrase in ordinary language : In a———country. Fill in the blank. (In a foreign country.) Now let us go over what we have done. (England mourns for her soldiers. They were her children, and they are lying dead in a foreign country.) Does England only *mourn* for them? Look at the first line : She is —— of them. Fill in the blank. (She is proud of them.) Why? Look at the last line : They died in what cause? (Because they died in the cause of freedom.) Now say what you have read in the first verse. (England mourns for her soldiers. They were her children, and they are lying dead in a foreign country. But she is also proud of them, because they died in the cause of freedom.)

VERSE 2

[Read the verse.]

Solemn the drums thrill : Death august and royal
Sings sorrow up into immortal spheres.
There is music in the midst of desolation,
And a glory that shines upon our tears.

How do the drums beat? Happily? (No, solemnly.) What does the poet say about death? Look at the first line. (He says that death is august and royal.) [Explain *august*.] But the soldiers were humble, common men. How can their death be majestic and royal? The poet means that we should regard the death of these humble soldiers with reverence and awe, as we regard the death of a king, because they died for us and for freedom. And that is how Indian boys and girls should think of the Indian soldiers who died in the Great War, as heroes, who died for their country. Now at the funeral ceremonies of a king there is grand, awe-inspiring music, the scene is beautiful. What does the poet say about the death of these common soldiers? Look at line 2. (That the sound of our mourning goes up to heaven.) While we are mourning what do we hear? Look at line 3. (While we are mourning we hear music.) While we are mourning what do we see? (While we are mourning we see a glory.) What does that glory do? (It shines.) Where? (Upon our tears.) If this glory shines, what is it? Music? What shines? This glory is what? (This glory is a light.) What kind of light? Think of the word *glory*. (It is a glorious light.)

Now let us collect together these thoughts. [By questioning, elicit the following paraphrase.] (The drums beat solemnly for the dead. Their death was majestic and awe-inspiring, like the death of a king. The sound of our mourning rises above the earth to heaven, and becomes beautiful music. There seems to be a glorious light

shining from heaven. While we are mourning we hear this beautiful music, and a glorious light shines upon us.)

Let us turn again to the words of the poem. Pick out the words and phrases in stanzas 1 and 2 that indicate that we are sorrowful and that we mourn. (England mourns; solemn the drums thrill; death sings sorrow; desolation; our tears.) Our mourning is proud and beautiful. Pick out the words that denote this. (Proud thanksgiving; death august and royal; sings sorrow up into immortal spheres; there is music; and a glory.) When we recite these verses we should say these words mournfully, or proudly. When we read or recite verse 2 we should picture in our minds the beautiful music that sounds above the mourners and the glorious light that shines upon them. That is a beautiful picture that every boy and girl should remember.

[Teacher to read verses 1 and 2 again, giving phrases referred to above their proper emotional value, and trying to make the pupils see the beautiful scene of mourning. Also let the voice dwell upon the rhyming sounds in *sea* and *free*, *spheres* and *tears*, and upon the alliterations in *fallen* and *free*, *sings sorrow*. If there is a pupil who can read with feeling, let him read also.]

VERSE 4

[Teacher reads.]

They shall grow not old, as we that are left grow old:
Age shall not weary them, nor the years condemn.
At the going down of the sun and in the morning
We will remember them.

Except 'the years condemn' all the words in this verse are simple words, and easy to understand.

'The years condemn' means that as the years pass we are condemned to old age.

Shall we who are living grow old? (Yes, we who are living shall grow old.) Shall we grow weary when we are grown old? We shall grow weary with—complete the sentence. (We shall grow weary with old age.) Will the dead soldiers grow old? (No.) Why not? (Because they died young.) Will they grow weary with old age? (No.) Why not? (Because they died young.) Point out the words in the verse that tell us that they will not grow old. ('They shall not grow old . . . age shall not weary them, nor the years condemn.') Shall we forget them? (No, we will remember them.) When? Look at line 3. (We will remember them at the going down of the sun and in the morning.) That means *every day*. The poet says that we will think of them every day.

As before let us put together the thoughts contained in this verse.

[By questioning, get the following from the pupils.]—(We who are living shall grow old, we shall grow weary with old age. But the soldiers will not grow old, they will not grow weary with old age, because they died young. We will always remember them.)

This verse contains only simple thoughts expressed in simple words. They tell us about simple soldiers. Englishmen think that this verse is beautiful because it is written in such simple and homely words.

[Teacher followed by a pupil reads simply and tenderly.]

VERSE 7

[Teacher to read.]

As the stars that shall be bright when we are dust,
Moving in marches upon the heavenly plain,
As the stars that are starry in the time of our darkness.
To the end, to the end, they remain.

Shall we live for ever or shall we die? (We shall die.) Pick out the words that denote that we shall die. ('When we are dust . . . in the time of our darkness.') Will the stars die or live for ever? (The stars will live for ever.) How will they live? Pick out the two adjectives which are used to describe their appearance. (Bright, starry.) *Starry* means not only bright, but also beautiful. How many sentences are there in this verse? (One.) Put into prose order. The poet says that the soldiers will live like stars, bright and beautiful. How long will they live? Pick out the words that denote how long they will live. [Elicit that they will live 'when we are dust, in the time of our darkness, to the end'.] Why does the poet repeat the words 'to the end'? To emphasize that they will live for ever. [Elicit the paraphrase.]—(When we are dead the stars will still be bright. They will be bright and beautiful for ever. Like the stars, the memory of the dead soldiers will remain bright and beautiful for ever.)

[Teacher to read the whole poem. Let your voice dwell upon the descriptive words that have been studied above. Modulate your voice so that the poem lives for the pupils, so that they appreciate the rhyming syllables. Select a pupil who has a good vocal delivery and can read with feeling, and let him follow.]

CONCLUSION

What have we learnt from the poem? We have learnt that the English people mourn for their dead soldiers, like a mother mourns for her children. But it is not a miserable and hopeless mourning: it is a beautiful and glorious mourning, for England is proud of her soldiers. We have learnt that the soldiers, although they are dead, will live for ever in the memory of their country. That is how Indian boys and

girls should think of the Indian soldiers who died for their country. And if they know of any war memorial, let them place a few flowers there or some other small token to show that they have not forgotten the brave men who died for them.

By the Sea

It is a beauteous evening, calm and free,
 The holy time is quiet as a Nun
 Breathless with adoration; the broad sun
 Is sinking down in its tranquillity;
 The gentleness of heaven broods over the Sea.
 Listen! the mighty Being is awake,
 And doth with his eternal motion make
 A sound like thunder—everlastingly.
 Dear Child! dear Girl! that walkest with me here,
 If thou appear untouched by solemn thought,
 Thy nature is not therefore less divine:
 Thou liest in Abraham's bosom all the year;
 And worshipp'st at the Temple's inner shrine,
 God being with thee when we know it not.

[Go straight to the heart of the poem. Tell the pupils that Wordsworth was standing by the sea, and that in the poem he describes what he sees and what he feels.] Let us find out from the poem first what he sees. I will read the poem.

Read over the poem silently and tell me what the poet sees. (Sun, sea.) What is the sun doing? (Sinking.) Then what time of day is it? (Evening.) Are there any other words that tell us it is evening? (It is a beauteous evening.)

What kind of evening is it? (A beauteous evening.) Anything else? (Calm and free.) *Free* means *clear*. First, the poet tells us that the evening is beautiful and clear. Then he says it is calm. Look at line 2 and say what kind of evening it is. (Quiet.) The evening is then calm and quiet. Read the poem and say what words tell us that the evening is calm and quiet. (The holy time is quiet, the sun is sinking in tranquillity, the gentleness of heaven.)

Remember these words. Now look at line 2 again. The poet says that the holy time is—complete the sentence. ("The holy time is quiet as a nun breathless with adoration.") That is a beautiful picture. Let us close our eyes and think of a devout woman praying to God. Her soul is so concentrated on God that no sound comes from her; she hardly breathes; she is breathless with adoration. In these words the poet tells us that the evening is very quiet, and that fills him with awe and reverence because he is in the presence of something that is holy. It makes him think of holy things. Are there any other

words that tell us that the evening is holy? (Gentleness of heaven, mighty Being.)

Now let us go over what we have studied. [Let the pupils give the first part of the paraphrase below.]

But is the evening absolutely quiet? Read lines 4 to 6. What sound is there? (A sound like thunder.) Does it stop or go on continuously. It goes on—complete the sentence by using a word in the poem. (It goes on everlastingly.) Who makes the sound? (The mighty Being.) The poet means that there is a low murmur of the sea that is like distant thunder. He pictures the sound as being made by the movement of a mighty God.

I will read the last six lines of the poem. [Reads.] Whom is the poet thinking about? Evening, sun, sea? (No, the girl.) Does the poet feel the solemnity of the evening? (Yes.) Does the girl feel the solemnity of the evening? What does the poet say? ('If thou appear untouched by solemn thought.') She does not feel the solemnity of the evening. Does that mean that she does not care for solemn things, that she has no soul? What does the poet say? ('Thy nature is not therefore less divine.') He says that although she does not feel the beauty and solemnity of the evening, this does not mean that she does not care for solemn things. He says that she is innocent of evil, and lives always near to God. That is the meaning of 'Thou liest in Abraham's bosom all the year.' Look at the last line. [Elicit.] This means that God is always with the young and innocent, although we cannot see it.

Now let us gather up what we have learnt from our study of the poem. [Elicit.] (The evening is beautiful and clear. It is calm and quiet. It is so quiet that it fills me with awe, and makes me think of holy things. The sun is sinking peacefully. A gentleness which seems to come from heaven is on the sea. The only sound is the low murmur of the sea, which goes on continuously and which is like distant thunder. It is a sound which might be made by the movement of a mighty God. The girl that is with me does not appear to feel the solemnity of the evening. But that does not mean that she does not care for solemn things, that she has no soul. For she is innocent of evil and lives near to God always. God is always with the young and innocent, although we cannot see it.)

SILENT READING

II

I SPOKE in my last article of the necessity for testing the results of silent reading. A very little enquiry after the reading period will soon convince one that even intelligent children are apt to blunder in comprehension, while the less intelligent often fall into gross misapprehension of what appears (to the teacher) to be the simplest kind of reading matter. Here is one illustration: A group of children aged nine, having read an account of Hereward the Wake's struggle with William the Conqueror, were asked to write down a series of questions bearing on the matter read. One question ran 'How many pieces did Hereward cut the Norman Knight into?' The answer, I discovered on enquiry, was sixteen; and the source of the blunder was the statement in the child's text that Hereward fought with sixteen Norman knights. Dr. Thorndike has collected some amazing examples of the mistakes which children make in gathering information from the printed page. He used the following paragraph as a measurement test for the understanding of sentences.

John had two brothers who were both tall. Their names were Will and Fred. John's sister, who was short, was named Mary. John liked Fred better than either of the others. All these children except Will had red hair. He had brown hair.

The children were allowed to read this paragraph as often as they liked. They were then asked the following question: 'Who had red hair?' Out of several hundred children as many as one-fifth (twenty per cent) answered that Will had red hair.

In testing the results of silent reading some distinction must be made between the tests used for informative reading and those used for story books. The main end of story reading in school is for entertainment; and the main aim of the story reading test will be to discover how far the child is being pleased by his reading. It is a mistake to set tests like the following in reading of this kind:

'In what county in England is the scene of *Lorna Doone* laid? Name five other English counties.'

To set a test of that kind is to treat *Lorna Doone* as if it were a geography textbook. Such tests pursue side tracks which the child is not conscious of in reading a story, and even if he were conscious of them he would not pursue them because they lead away from his interest in the story itself considered as a story. To set a really satisfactory test on a story book is a very difficult business; how is one to measure delight; how can enjoyments be put in the scales? Often the wise teacher will be content to trust the evidence of his eyes to tell him

that his class are enjoying their story book. And he can get his children to talk over their recreative reading with him in friendly fashion, to exchange reading experiences, as book-lovers delight to do. This will not only give him insight into what they are getting out of their reading but will help them to put more into their reading. When written tests are used they should always be short in scope and context. To ask a child to write an account of a book he has just read, presupposes powers of compressing material and of surveying adequately a wide field which are beyond children.

The aim of informative reading (textbooks and the like) is to acquire information, and the aim of the tests used here will be to discover how much and how readily information is being acquired. Written tests will be indispensable although oral review questions still have their place. The written tests for comprehension must do more than test mere memory, because it does not follow that a child who remembers the facts thereby understands them. The best test is that which demands some new organization of the matter as proof that the reader has not merely imbibed knowledge but is able to give it a fresh setting, an orientation differing from that in which he found it. Often this condition may be satisfied, simply yet effectively, by setting the test in such a way as to shift the focus of the tested material. Thus a narrative in the usual third person form may be set for reproduction in the first person thus securing a more individual cast to the work while, at the same time, preventing a mere echoing of the original source.

Care must be taken to allow a reasonable interval of time to elapse between the reading and the working of the test.

With young children the tests would, of necessity, be much simpler than those I have just been speaking of. The questions, whether oral or written, will be designed to measure, primarily, the understanding of sentences. Here is an illustration borrowed from the well-known Silent Reading Tests devised by Mr. S. A. Courtis.

'Flop, flop, went the fish, nearer and nearer to the edge. Kitten forgot to be afraid of the water. Quick as a flash down went his paws with all the little claws out. The fish could not get away.'

The questions are:

'Did Kitten put out all his little claws?

'Did it take him long to catch the fish?

'Was Kitten afraid of the wet fish?

'Could the fish get away from his claws?

'Did the fish flop nearer to the edge?'

One of the best tests for comprehension in silent reading and useful at all stages, is to set the children to drawing their own set of questions on matter they have read. This exercise gives us not only an excellent

guarantee that the book has been understood (how otherwise could questions be framed at all?) but the questions themselves, adapted and amended by the resourceful teacher, can be put to good use in subsequent revisions and re-readings.

The paragraph test is a searching test for comprehension and can only be successfully undertaken by advanced readers. The pupil is required to state the chief point in a paragraph using a single sentence; or a series of paragraphs in a series of sentences. Certain reading matter does not lend itself to this method of testing, but where the material moves on from point to point in an orderly sequence, the paragraph test makes an admirable exercise.

In all these tests it will be found that the quick readers score much better than the slow readers, and this is not to be wondered at when one considers the difficult obstacles which hinder the plodding reader. Every time the slow reader pauses, every time he loses himself or casts back, the sense of the passage fades from the mind. Every effort must be made by the teacher to quicken his class to a reasonable reading speed

W. S. TOMKINSON

THE NUMBER SYSTEM OF ELEMENTARY MATHEMATICS

The Rule of Signs

In the first article we discussed some elementary ideas relating to numbers and to directed numbers in particular. We shall now give some simple illustrations of the *Rule of Signs*, known to most school boys as: '*Like signs give plus; unlike signs give minus*,' but which may be more correctly expressed in algebraic form thus:

$$\begin{aligned} (+a).(+b) &= +a.b, & (+a).(-b) &= -a.b, \\ (-a).(+b) &= -a.b, & (-a).(-b) &= +a.b. \end{aligned}$$

Strictly speaking the Rule of Signs is a *convention* and its justification lies in its consistency of application in mathematical analysis. As J. W. A. Young puts it in his *Fundamental Concepts of Algebra and Geometry*: 'There can be no such thing as an *a priori* proof of these laws of signs; they are pure conventions, finding their justification on the logical side in their consistency with previous assumptions and on the practical side in their serviceableness.'

Some teachers of mathematics accept this statement with a certain amount of relief, since it absolves them from the responsibility of having to prove the rule; others seek at least to illustrate what they cannot prove.

TWO POPULAR METHODS

1. Let us start with the fundamental definition of multiplication :

$$3 \times 4 \text{ means } 3 + 3 + 3 + 3 = 12.$$

Similarly $(-3) \times 4$ means $(-3) + (-3) + (-3) + (-3) = -12$.

$$\text{But } (-3) \times 4 = 4 \times (-3).$$

$$\therefore 4 \times -3 = -12.$$

$$\text{Now we have } 4 \times 3 = +12.$$

Therefore the effect of changing the sign of the multiplier is to change the sign of the product.

Therefore we infer, by analogy, that since $-4 \times 3 = -12$

$$(-4) \times (-3) = (-12) \text{ with sign changed.} \\ = +12.$$

There are several doubtful points in this proof which make it unacceptable to the serious teacher.

2. Another popular proof is the following :

From the fundamental definition of a *directed number* we find that ;

$$(5) + (-5) = 0.$$

Let us subtract $(+5)$ from (-8) .

$$\text{We have } (-8) = (-8) + 0 = (-8) + (+5) + (-5).$$

$$\therefore (-8) - (+5) = (-8) + (+5) + (-5) - (+5), \\ = (-8) + (-5).$$

$$\therefore - (+5) = + (-5) = (-5).$$

Similarly we can show that $- (-5) = + (+5) = (+5)$.

This method does not appeal to the average school boy. He feels, in some vague way, that he has been the victim of an arithmetical trick.

The following methods of illustrating the rule of signs will be found much more convincing, perhaps because they are 'concrete.'

I. Directed Areas

Some Fundamental Definitions

We shall begin by trying to think of the *smallest imaginable portion of matter*, which we shall call a *particle*. The *position* of this particle in space we shall call a *point*.

When a point-particle moves from one position to another, it traces out a *line*. When a point-particle moves always in the same direction, it traces out a *straight line*.

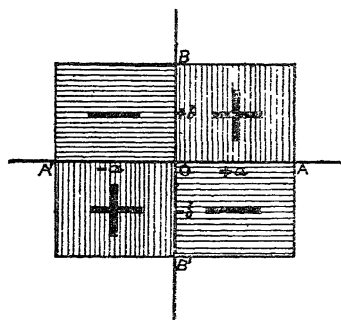
If a point moves in a certain direction, it may be said to trace a *positive straight line* ; therefore, if it moves in the opposite direction it traces a *negative straight line*.

When a straight line moves in a *constant* direction, except that of its own length, it traces out a *plane surface* or a *plane*.

When a plane moves in any direction, except that of its own surface, it traces out a *solid*.

Length-length Products

Let us take two perpendicular straight lines or *axes* XOX' , YOY' intersecting in O, and let OX and OY be the positive directions from O, which we call the *origin* or *zero point*.



1. Let a point-particle move from O to A in the direction OX a distance $(+a)$. Now, let us imagine OA to be an extremely *thin rod* and let it move, at right angles to itself, in the direction OY, through a distance $(+b)$. The rod will trace out a rectangle (S).

Since the rectangle is made by a *positive rod moving in a positive direction*, we may take the area to be a *positive area* and mark it $(+S)$, and we may colour this area *red* (vertical lines).

The area of a rectangle = length \times breadth.

\therefore we may write $(+S) = (+a) \cdot (+b) = (+b) \cdot (+a)$.

2. Now let the rod OA move in the *negative* direction (OB'), that is, in the *opposite* direction from that of the previous case, through a distance $(-b)$.

Since the area is traced by moving the rod OA, in the direction opposite to that moved before, we may call this a *negative area*, and may colour it *blue* (horizontal lines).

So we get $(-S) = (+a) \cdot (-b)$.

Again, we may trace this negative area by moving the negative rod OB' $(-b)$ in the positive direction OA $(+a)$.

So $(-S) = (-b) \cdot (+a)$.

3. We may now move the negative rod OB' $(-b)$ in the negative direction OA' $(-a)$.

Since the area is traced by moving the rod OB' in the direction *opposite* to that of the last case, it will be red instead of blue, that is, *positive*.

Thus $(+S) = (-b) \cdot (-a)$.

Again, we may trace this positive area by moving the negative rod OA' $(-a)$ in the negative direction OB' $(-b)$.

So $(+S) = (-a) \cdot (-b)$.

4. Finally, we may move the negative rod OA' in the positive direction OB, that is, in the opposite direction to that given in the last case and the area will be blue instead of red, or *negative*.

So $(-S) = (-a) \cdot (+b)$.

and finally $(-S) = (+b) \cdot (-a)$ as before.

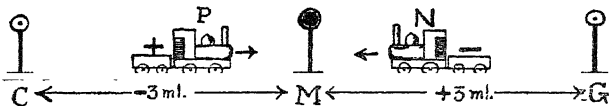
II. Rate-Time Products

If a train move at the rate of 30 miles per hour (or $\frac{1}{2}$ mile per minute) how far will it go in 6 minutes?

Answer: Distance = $\frac{1}{2} \cdot 6 = 3$ miles.

In other words, distance = speed \times time.

$$\text{or } d = s.t$$



Now in the City of Bombay there are three local railway stations, Colaba (C), Marine Lines (M) and Grant Road (G) in order, about three miles apart. Two trains are travelling, one (P) from C to G at the rate of 30 miles per hour and the other (N) from G to C at the same rate. Now, let us make M our *origin* or *zero point* and MG the positive direction from M. Then MC is the negative direction from M.

Then the length of MG = (+3) miles, and that of MC = (-3) miles.

Again, since the train P is moving in the positive direction, its *speed* is said to be *positive* ($+\frac{1}{2}$) mile per minute, and, since N is moving in the negative direction, its speed is *negative* ($-\frac{1}{2}$) mile per minute.

Let us now answer the following four questions:

- (1) Where will P be 6 minutes *after* passing M?

Answer: at G, (+3) miles.

- (2) Where was P 6 minutes *before* passing M?

Answer: at C, (-3) miles.

- (3) Where will N be 6 minutes *after* passing M?

Answer: at C, (-3) miles.

- (4) Where was N 6 minutes *before* passing M?

Answer: at G, (+3) miles.

Now the speed of P is ($+\frac{1}{2}$) mile per minute and that of N is ($-\frac{1}{2}$) mile per minute. Again, 6 minutes *after* may be written (+6) minutes and 6 minutes *before* as (-6) minutes.

Putting these numbers in the formula $d = s.t$, we get the following answers to the four questions:

	Rate	Time	Distance
(1)	$(+\frac{1}{2})$	$(+6)$	$(+3)$
(2)	$(+\frac{1}{2})$	(-6)	(-3)
(3)	$(-\frac{1}{2})$	$(+6)$	(-3)
(4)	$(-\frac{1}{2})$	(-6)	$(+3)$

We have thus arrived at the *Rule of Signs*.

As a further example of time-rate products we may take the following:

A man named Gopal saves money at the rate of Rs. 12 per month ; another man named Rama loses money at the same rate. Compare their financial positions, five months hence and five months ago, with their positions now.

1. Gopal saves money at the rate of Rs. 12 per month ; his rate of saving is (+ 12) per month. Five months hence he will be Rs. 60 better off than he is now.

$$\therefore (+ 12) \cdot (+ 5) = + 60.$$

Here note that *saving*, *hence*, and *better off* are expressed by *plus* signs. We shall now express *losing*, *ago* and *worse off* by *minus* signs.

2. Gopal saves Rs. 12 per month. Five months ago he was Rs. 60 worse off than he is now.

$$\therefore (+ 12) \cdot (- 5) = - 60.$$

3. Rama loses Rs. 12 per month. Five months hence he will be Rs. 60 worse off than he is now.

$$\therefore (- 12) \cdot (+ 5) = - 60.$$

4. Rama loses Rs. 12 per month. Five months ago he was Rs. 60 better off than he is now.

$$\therefore (- 12) \cdot (- 5) = + 60.$$

Examples : (1) A tank, which at present holds 500 gallons, has one inlet pipe admitting water at the rate of 8 gallons a minute and another outlet pipe removing water at the rate of 6 gallons a minute. How many gallons will there be in the tank in 12 hours' time ; how many gallons were there 12 hours ago ?

(2) The present population of a town is 12,000. New residents enter the town at the steady rate of 200 a year ; others leave the town at the rate of 150 a year. Compare the population of the town 5 years hence and 5 years ago with the population to-day.

III. The Removal of Brackets

The Rule of Signs is also implied in the rule for the removal of brackets. This rule may also be illustrated concretely. A *bracket* is a device for grouping things so that we may think of them together. It is a *box* or *envelope* in which we store things, until such time as we may choose to scatter them. Thus, if we have three white and four black balls in a box, we may express the fact in symbolic form as :

$\boxed{3w + 4b}$ or $[3w + 4b]$ or $(3w + 4b)$, or by a vinculum above or below the expression.

Let us take three boxes with an equal, but (to the class) unknown number of beads in each. We may write this unknown number as x .

Thus we have $[x] + [x] + [x]$.

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Case 1. Let us now add, say, *one* bead to the first box, *two* to the second and *three* to the third.

We now have $[x + 1] + [x + 2] + [x + 3]$.

How many beads have we altogether? Answer: $3x + 6$.

We may put all these boxes into a larger box $[\quad]$.

Thus we get $[3x + 6] = [x + 1] + [x + 2] + [x + 3]$.

Let us take away any one of the boxes, say, $[x + 1]$. How many beads shall we have left. Answer: $x + 2 + x + 3 = 2x + 5$.

Thus $[3x + 6] - [x + 1] = [x + 2] + [x + 3]$.

Now remove all the brackets. We know that $[3x + 6] = 3x + 6$, $[x + 2] = x + 2$ and so on, when the brackets are removed.

$$\therefore 3x + 6 - [x + 1] = x + 2 + x + 3 = 2x + 5.$$

What must we do, when removing the brackets from $-[x + 1]$ in order that the two sides of the equation may still balance?

Obviously we must get $-[x + 1] = -x - 1$ so that $3x + 6 - x - 1 = 2x + 5$.

In other words, when a $-$ sign is in front of a bracket we must change the signs inside the bracket when we remove the bracket.

Case 2. Let us now remove beads from the original boxes instead of adding them.

We now have $[x - 1] + [x - 2] + [x - 3]$.

How many beads have we altogether? Answer: $[3x - 6]$. Proceeding as before we get:

$$[3x - 6] - [x - 1] = [x - 2] + [x - 3].$$

Now remove all the brackets. We get $[3x - 6] = 3x - 6$, and $[x - 1] = x - 1$ and so on.

$$\therefore 3x - 6 - [x - 1] = x - 2 + x - 3 = 2x - 5.$$

Obviously, again, we must change all the signs inside the bracket $[x - 1]$, when removing the bracket. Thus $-[x - 1] = -x + 1$.

As an extension of the simple rule illustrated in these two cases, we can easily show that

$$+2(x - 1) = +2x - 2,$$

$$-2(x - 1) = -2x + 2.$$

Which is only another application of the *Rule of Signs*.

(+). (+) gives +.

(+). (-) gives -.

(-). (-) gives +.

H. R. HAMLEY

EDUCATIONAL PSYCHOLOGY AND THE PRACTICAL TEACHER

III. The Psychology of English Teaching

IN the last article we enunciated four main principles of the psychology of learning: Specific Practice, Adequate Practice, Prevention of Error and Desire to Improve.—Let us apply each of these principles in turn to the problem of teaching English as a foreign language.

Principle 1. Specific Practice

It is not possible to devise a practice-system in any subject until we know clearly what we desire the boy to do. What is our aim in teaching English?

The aim may be divided into three parts:

We desire the boy to *read* English, to *speak* (and understand) English, to *write* English.

We desire that he should do these things with the minimum of intervention of the mother-tongue.

We may therefore suppose that lessons in English will be of three kinds. In one lesson the boy will be found reading English books fluently and with pleasure; he will not be translating them into his mother-tongue but will be gathering the meaning direct from the English.

In another lesson we shall find him speaking, not from a vernacular book, but from out of his own mind, telling perhaps in his own choice of English words something of that which he has read in his English book.

In a third lesson we shall find him writing, not a translation but a free composition expressing in his own words his own actual experience, or perhaps some vicarious experience met in his reading.

The boy's reading will be of that type which we desire that he should actually use in after life, viz. silent reading, fluent yet not careless, and obviously a source of enjoyment to him. (For, if he does not enjoy, he will not read in his after-school days.)

The boy's speech in the class-room will be such as we desire him to use in his after-life: not perhaps faultless in pronunciation, but sufficiently accurate in essentials to be understood by any English-speaking person; not perhaps very varied as to vocabulary and idiom, but simple, clear, intelligible and accurate.

Here then is the analysis of the English Time-table (in my own school):

			CLASS III (8-9 YR.)	CLASS IV (9-10 YR.)	CLASS V (10-11 YR.)
Reading	..	..	4	4	4
Speech	..	..	3	3	3
Writing	..	..	3	2	2
Pronunciation and Special					
Corrections	..	..	1	1	1

and so on.

What then has happened to 'textbook,' 'composition,' 'grammar,' 'translation,' and all the ordinary nomenclature of the time-table? We do not want the boy to do grammar or translation in after-life, nor is the mastery of any particular textbook of the slightest importance in itself; we want the boy to *read* and *speak* and *write* the language. In so far as grammar or translation or composition are necessary parts of specific practice in these functions they are automatically introduced into the practice lessons in speech, reading, and writing. They certainly are not aims in themselves, and consequently have no place in the time-table or curriculum.

Principle 2. Adequate Practice

Let us pass to the second principle,—the Principle of Adequate Practice. We commonly find schools using reading-books which contain no list of all the words used in the book (in the case of a first book) or, in the case of a subsequent book, of all the *new* words used in the book (*viz.* not already used in the previous books). Hence new words are presented to the boys almost without the teacher knowing of it. No doubt he explains and perhaps practises some of them at the time. But he has no record that this particular new word has occurred, and he does not revise it or practise it again. And perhaps it never occurs in the reading book again. The boys perhaps, in a very partial manner, learn the word at its first occurrence, but it never becomes a living part of their vocabulary. Hence, sooner or later, they forget it, and any energy they have spent on it is wasted.

Every new word or idiom or other element of language which is introduced to the boy must be introduced deliberately with purpose, and must be fully assimilated so that it becomes a living part of the boy's vocabulary. The teacher must know precisely and exactly what new words (or other elements) have been introduced in this particular year's work so that he may ensure that every one of them may be so fully assimilated.¹ (And conversely he must know, or be able to find out in regard to any particular word whether it is new or not. Otherwise he may waste time and energy in exercising a word which the boys already know.)

¹ For an example of such construction in a textbook see the *New Method Readers* (Longmans, Green & Co.).

Now you will commonly find in schools that the children possess as many as three English textbooks, (1) a Reader, (2) a 'Composition Book' and (3) a Grammar—all three by different authors, and each using a different vocabulary. Very often, too, the three sections of the subject are taught by different teachers. Hence the child partially assimilates three different vocabularies: he half learns a word in his Grammar which does not occur in his Reader: and he half learns a word in his Reader but does not learn to write it in his composition. He hopelessly over-practises some words which occur in all the three books. And a teacher who wishes to revise the whole vocabulary of the class would have to make an index of all the words and idioms and grammatical usages occurring in three different books in order to discover precisely what things the boy is really supposed to know.

The ideal, of course, would be to have a 'Speech Book,' a 'Writing Book' and a 'Reading Book,' all constructed by one author with their vocabularies carefully dovetailed, and each word proportionately exercised in each book according to its relative importance in speech, or writing, or reading. As no such set of books exists, the next best thing is for the teacher to base all his work on a reading book which possesses a tabulated vocabulary. This may result in the boy learning to speak and write a certain small number of words which are really of little importance save for reading purposes. But in actual fact such instances are not very common.¹

3. Prevention of Error

The next principle is Prevention of Error. This is, perhaps, the most significant and most fundamentally important of all the principles in language work. It is an actual fact that half, and probably more than half, of the English teaching done in India, consists in teaching the boy wrong. If the boy has never heard a wrong expression, why should he express a thing wrongly? There is only one excuse, namely, where his mother-tongue has one form of idiom and English has another; and that is just the very case in which the teacher is required to *prevent* an error, to hold up a warning finger beforehand. That is just what the teacher is there for.

But consider what actually happens.

The teacher was a Bengali and he announced the sentence '*She paharer nikote giyachilo*' ('He went to the mountain') for the class to translate. Now Bengali uses the pluperfect tense 'had gone' in narration where English uses the past tense, 'went'. Bengali frequently omits the definite article. Bengali uses the same word *nikote* both for 'near'

¹ See Dacca University Bulletin 13, *The Construction of Reading Material* (Oxford University Press) for a discussion of this point; also *New Method Composition*, Book I.

and 'to'. The teacher pointed to the first boy, who said, 'He goes near mountain'. He silently passed on to the second boy, who said, 'He has gone near mountain'. The third boy said, 'He had gone near mountain'. The fourth boy said, 'He went near mountain'. The teacher said 'to the mountain' and passed on to the next sentence.

The net result is therefore :

NUMBER OF IMPRESSIONS			
<i>Giyachilo</i> = $\begin{cases} \text{has gone} \\ \text{had gone} \\ \text{goes} \end{cases}$ 3	<i>Paharer</i> = mountain (omit 'the') 4	<i>Nikote</i> = near 4	Total wrong impressions 11
= Went 1	The mountain 1	<i>Nikote</i> = to 1	Total right impressions 3

What should the teacher have done? He should of course have warned the class beforehand that *giyachilo* in narrative is translated 'went', and that *nikote* in such contexts means 'to'. He should have given special drill on these points. And he should have checked and corrected the boy who tried to omit 'the' before the boy had time to say more than half the first syllable of 'mountain'.

The boy must not say, hear, see nor even think anything wrong.

The fact is that teachers are always muddling up examination and teaching. Your purpose in examining is to find out if the boy can do it right, and in so doing you are compelled to run the risk of his doing it wrong: in teaching your purpose is to make sure that he *shall* do it right, again and again, so that there may never be any risk of his doing it wrong.

Every wrong answer in the class-room undoes the good of five or ten, or fifty right answers.

4. Desire to Improve

Lastly as regards Desire to Improve. Learning a language is not an exactly exciting occupation. Indeed it is such a dull occupation that boys are always trying to fly before they can walk—and that is a frequent cause of errors.

The bricks of a language are words,—not words in their usual sense, of things made up of letters, but units of meaning. 'A box' is a word. 'To box' is another. 'Boxes' is a third. 'Box's' is a fourth. Each requires one unit of learning effort.

You can at least inform the boy from time to time how many units of progress he has made. It is only a matter of totting up the

tabulated vocabulary. Such information is a great stimulus to 'desire to improve

But better than that is to prove to him what his knowledge will do. Let him see what sort of a book he can read which is largely within his vocabulary;¹ or devise a little situation in which he can talk or write without feeling the need for any words which he does not know.

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IV. The Psychology of the Mother-tongue

We have enunciated four Principles of Learning :

1. Prevention of Error
2. Adequate Practice
3. Specific Practice
4. Desire to Improve

The second and fourth of these are most significant in connexion with the teaching of the mother-tongue.

The lesson of the fourth principle is a very simple one. We go on speaking and writing the mother-tongue all our lives : we speak it and write it every day ; but do we thereby come to write or speak any better? Not at all, sometimes we actually become worse. We tend to take the mother-tongue for granted,—as some little boys take their mothers and some men take their wives for granted,—and think that we owe her no special attention.

The mother-tongue is the foundation of a man's emotional and intellectual life ; in it were formed and in it are stored all the ideas and emotions of the earliest and most important stages of mental development. As is his use of the mother-tongue, so is the man's thought itself,—careful or slovenly, copious or meagre, coarse or beautiful.

The special importance of the mother-tongue is in connexion with the emotional life. A man may think in a foreign language, but he can only really love and hate in his own. For the emotions, first developed during infancy, are intimately linked with the fundamental language, the language learnt in infancy—the mother-tongue. The refinement, the education, of the emotions can be achieved through one medium only,—the mother-tongue.

¹ For example the *Supplementary Readers* in the *New Method Series*.

Contrast the crude attempt of the navvy to express his emotion, with the glory of Shakespeare :

I love yer Liz : 's welp me you're an ange!.

O speak again bright angel ; for thou art
As glorious to this night being o'er my head
As is a winged messenger of heaven
Unto the white-upturned wondering eye
Of mortals.

It is not that the navvy feels less, but that he has not the divine gift of speech to transmute animal longing into divine passion.

Most people who have had much to do with Indian students or school boys agree that an undue proportion of them tend towards a certain emotional instability. One day they are full of the wildest enthusiasm for some popular hero ; but, a few days or weeks later, they may be hurling invectives at him. They get carried off their feet by fleeting bursts of enthusiasm which leave no permanent residue of purpose. To the psychopathologist this is a symptom of a lack of emotional 'integration'—a lack of organization in the emotional life. The inner life has not been taken in hand, drilled and disciplined, and changed from a rabble into an army.

The one means of emotional education is the mother-tongue. And, if it is true that there is a lack of emotional stability in the Indian student, it is to the neglect of his mother-tongue that this is very largely due.

The principle which is of the greatest practical significance in this subject is the Third—Specific Practice. What do we want the boy to do in his later adult life? Let his practice consist in doing that now.

Let us go into the vernacular class-room for a minute and observe what is going on. The teacher has in his hand a little book of about a hundred pages : this will be covered in a year's work. It consists of short extracts, some moral, some descriptive, some informative, none very interesting. These extracts are written in extremely difficult language. A boy reads, stumbling over the hard words. The teacher calls for explanations of these hard words : or explains them himself. An occasional word is parsed, or sentence analyzed.

What is the aim of this lesson? It is very difficult to say.

So far as there is any aim, it is to acquaint the child with the meanings of abstruse words which he is never likely to meet again. Certainly it can do nothing to make him love the literature of his mother-language and learn to use the mother-tongue as a means of expressing the secrets of his heart.

Let us consider what actually are the purposes aimed at in teach-

ing the mother-tongue, and then design a course which may fulfil them.

1. We want the child to be able to write his own language correctly and idiomatically so that it may become an adequate expression of himself.

2. We want him to speak and pronounce his mother-tongue correctly and beautifully so that it may be an adequate expression of himself. (And we want him to be able to read poetry aloud sufficiently well to be able to appreciate the self-expression of others.)

3. We want him to form the habit of reading good literature in the mother-tongue and to discover in this a source of pleasure and self-development.

Let us devise a system of practice which shall fulfil these aims.

1 (a) Essay Writing: Personal letters, descriptions, conversations and original stories. The essay to be written carefully in ink; corrected by the teacher, and rewritten eliminating all errors.

(b) Specific drill aiming at preventing errors in forthcoming essays or eliminating current errors.

2 (a) Reading aloud of poetry and prose by the boys, with no interruptions save for improvement of pronunciation or delivery. (*N.B.* It is desirable that the book should be specially marked with pauses and stresses, also with signs indicating the correct pronunciation of words in which error is at all probable.)

(b) Reading aloud by the teacher of poems or prose passages likely to interest the class.

3. Library Work: Each boy is provided with a book from the library, as required. He keeps a record of reading. One period is devoted to silent reading, during which the teacher calls up each boy, observes his record, and questions him on book's read.

It may be asked what has become of grammar? The answer is that it will be found, so far as it is needed, in Section 1 (b). What is the textbook? The only textbook is that used for reading aloud. Existing books might be used for this purpose, but a specially prepared book would be desirable containing passages specially marked for reading.

The first principle—Prevention of Error—demands some discussion.

In teaching English to the Indian boy we are teaching a new language: the child has learnt nothing before. If he acquires any errors he acquires these in the process of learning the language in the class-room. With the mother-tongue the case is different. Most of the child's errors are colloquialisms or careless expressions, or dialect which he has acquired in his everyday speech before he came to school, or which he acquires in his out-of-school life. Hence the teacher in this

subject cannot always hope to prevent error : his task is here rather to eliminate it.

Of course it is not possible to eliminate error altogether. It is not possible, nor desirable, to teach a child to speak like a book. The task rather is to teach the child to select. We all have two languages, the colloquial language of ordinary speech, and the more select language of writing.

The child has to learn to use the right word in the right place : he has to learn what words belong to ordinary speech, and what words belong to the more careful language of writing. The child's purpose, both in speaking and in writing, is to be understood. When he is speaking to a school boy he should rightly use the words of school boys. But when he is writing, he is writing for the world at large and he must conform to the conventions of the larger world.

Learning to use the mother-tongue accurately consists, therefore, in learning the conventions of the mother-tongue. These are not an artificial style substituted for the individual's natural speech, but merely a necessary censorship of the individual in order to make him intelligible to the herd. Be yourself and make yourself intelligible to others.

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The Teaching of English in England (H.M. Stationery Office).

Teaching the Mother Tongue, P. B. BALLARD (Hodder & Stoughton).

ESSAY SUBJECTS OF THE TYPE SUGGESTED ABOVE

Advanced English Composition (Longmans, Green & Co.).

A BOOK OF PASSAGES MARKED FOR READING

Exercises in English Pronunciation and Intonation (Teachers' College, Dacca).

MICHAEL WEST

SOME THOUGHTS ON SCHOOL GEOGRAPHY

II

'CHILDREN like many things. If we are always to follow their line of interest, we know not whither we shall be led. They may like to learn people's ways, but where is the guarantee that their liking is for the best?' Statements such as these are often made by teachers who do not care for changes. It is difficult to convince these 'no-changers'. We need not raise the question whether children are born

'angels' or 'devils'. But we accept children's healthy curiosity as a sure guide in instructing them. If the development of personality is a good aim in education, then, surely, the safest method of achieving this aim is to let each child work out his own destiny by following his natural bent. To lay stress on human geography is but to accept this educational principle.

To be quite sure that we are not merely playing with words let us clearly formulate the ideas underlying human geography. The human side of geography may for simplicity be classified under three headings :

First, we have that aspect of a people's life which shows itself in their manners and customs, in their housing, food, clothing, sports and pastimes, and in their general mode of living. It is this aspect which first catches the notice of the foreign traveller. This is the obvious side. Beneath the surface lie people's tradition, taste, sentiments and moral ideas—which express themselves best in their literature, art and philosophy ; in their epics ; temples, mosques or churches ; historic monuments ; popular and national songs ; and in their sacred books. The ordinary tourist usually misses this side and carries away wrong,—at any rate very partial and incomplete—notions about the people of the country visited. The ignorance of this side—call it the *spiritual* side if you like—is largely responsible for the lack of sympathetic understanding among nations.

Then there is the economic side of life. Man is a producer and consumer of goods. Human geography treats of the production of raw material, of its manufacture into useful commodities, and of the distribution of these commodities by rail, road and water. The wants of man,—how he is fed, and how he is clothed—and how they are met in the different parts of the world form an interesting branch of study, one which has its appeal to the young mind. An indirect result of such studies is to develop and strengthen a sense of the interdependence of the nations, in a world gradually growing into a huge economic unit.

Thirdly, we have the political side of life. The peoples of the world are ordered into diverse political organizations. These differ as widely as other social institutions. We cannot teach abstract political ideas to school children ; but we can give concrete examples of the different types of government prevalent in various regions. We can also, incidentally, give children some ideas of the political problems of the day, viz., The problem of the Far East ; the problem of tropical colonisation ; the significance of the naval base at Singapore and that of the opening of the Panama Canal. Some reader may raise the question—'Can school boys understand such problems?' To this my reply is—'Yes. Boys of the High school classes are intelligent enough to understand all these.' 'Are they interested to learn the economic

or the political side of man's life ? ' To this question again my answer is 'Yes.' My studies of the geographical interests of Indian children tend to show that up to the age of thirteen they are most interested in peoples' manners and customs, in their habits and ways of life. Above that age a large number of Indian children show a desire for the knowledge of the economic and political sides of life also.

There is a further point which I wish to emphasize in this connexion. Lives of pioneers and explorers—who are pre-eminently men of action—have a great fascination for the youths of all nations. I am afraid this aspect of geography, which may be called the 'heroic side', has hitherto been neglected in schools. It is now recognized as a sound educational principle that some study of the lives of eminent men of science should form part of the science course taught to school children. It seems to me that the history of exploration and discovery would do for our boys and girls what biographies of scientists already do for them, only perhaps in a more thrilling manner. Besides, the stories of exploration will serve to sublimate the youth's adventurous spirit and love of sensation in an innocuous way.

Keeping these aspects of human geography before us, let us now look at the whole matter from the standpoint of the practical educationalist. What do we expect of an average educated man or woman ? Every person, whether educated at school or not, has got to live. Life means many things. It means that one is to keep well, earn his living, spend his leisure profitably and be an intelligent citizen. An educated person is expected to *do* all these things better than his uneducated fellow-citizens. But he is expected to *be* more than they. Culture is the *sine qua non* of education, and culture is a highly complex product. Without attempting to give a complete analysis of 'culture', we may say that its essential constituents are : Polished manners, grace and elegance of speech and action, *breadth of vision*, freedom from narrowness of outlook, and a capacity to take an intelligent interest in, and to form a sane opinion about, the problems affecting the peoples of the world. The study of history and literature provides a part of this culture, but an important part can be supplied only by contact with other people. Travel in a foreign country among other people with other points of view has always been looked upon as a happy method of rounding off angularities and of producing a liberal and tolerant attitude. Every person has not the means to travel in foreign lands in the company of an expert tutor. If we cannot go to foreigners we can bring them to us. We can have their ways of life vividly portrayed to our children. This has to be done through human geography.

If the promotion of 'peace on earth and goodwill toward men' is a

worthy ideal, the efforts towards its realization can only be based on knowledge of people—their problems and their conditions of life. With the gradual elimination of the difficulties of transport and communication as a result of the marvellous achievements in the fields of aviation and wireless telegraphy the peoples of the world are coming closer together every day. The need for the knowledge that will promote sympathy and understanding among peoples of all nations is the most urgent need of the world of to-day. Our school children of to-day are going to be the future citizens of the world. They must be provided with this knowledge through a study of human geography.

R. P. KAR

NATURE STUDY IN INDIA

BIRDS (*Continued*)

LESSON III

In working over the observation brought by your class on *chil*, *kotwal* (king-crow) and *gauriya* (sparrow), you will begin to make a difference in method according to the age of your pupils.

For small children (say, up to ten years of age) the method should be that of 'nature-study,' properly so-called, throughout; that is, each bird may be studied as a separate object of beauty and wonder and interest, as creatures of one kind, certainly, but with no attempt made at explicit comparison or classification, still less at any scientific understanding of structure.

But with boys and girls who are eager to know 'why?' as well as 'what?' the two lines of scientific enquiry—(1) What like, and how resembling? leading to *classification*; and (2) What do they do, and how do they do it? leading to *physiology*,—should be in the teacher's mind throughout, although he should avoid all long names and technical terms as far as possible. (At this stage, he may find a book by the present writer useful.)¹

Thus, when the class's observations have been collected, tabulated, and noted, somewhat as follows, the material may be worked over again.

BLACKBOARD

Chil.—Very big; colour, dark brown; shrill cry like chee-ee-ee-yell!; frightens little birds and eats them.

Kotwal.—Small body, long tail with turned-out tips; shiny black;

¹ *Bird Study in India* (Oxford University Press).

darts^a about after insects. Can frighten *chil* and make him fly away. [Why? observations needed.]

Gauriya.—Little and brown; very bold; often in flocks, not all alike; makes a chattering noise; eats grain, and destroys juicy garden plants.

Now compare these observations with the previous set of three, and pick out points in which to compare all six together. One which should emerge is difference of *sex*; the cock-sparrow's black bib, grey head, and brighter colours should have struck some of the children, and will form a suitable introduction to the topic. Follow up with: 'Did any of you notice whether all the *kites* (Pariah kite, the English name for *chil*, may be taught) were alike?'—Probably some questions will have been asked already about the bigger birds seen with the kites, generally dingier in colour and shabbier. These are the *female* kites, and that the advantage in size is theirs is remarkable, as the children will point out, as they will all know that peacocks (*moa*) are much larger than their wives, and that this is the case with *murghi* (common domestic fowl) also. If none of them have noticed sex-difference in the other birds, don't press it; it is much less striking.

Other comparative points to take up will be: Food; beaks; tails; feet; gait; flight. But let these come as the children are struck with them; there is no need to force them to learn everything at once.

From this point, your plans will diverge according to the age of your pupils. With little ones, have a few more similar lessons, till it begins to be difficult for them to bring new descriptions; keep a list in the class-room, with accompanying sketches, of all birds known; and pass on to other nature studies. But let it be well understood that you are always eager to hear about 'new' birds; and each child will be proud to be the one to be allowed to add a record to the list. Look through Mr. Dewar's book at intervals with them saying 'We have not found *that* yet!' and so keep a continuous lookout.

SCHEME CONTINUED FOR ELDER PUPILS [Aged 10–16, say]

Elder pupils who have learnt to recognize some dozen or more of the birds of their neighbourhood and can be left to carry on such recognition with the aid of *Birds of an Indian Village* or some similar descriptive book, should have definite lines of enquiry suggested to them, in pursuit of which they may not only acquire knowledge, but what is much more, reverence for lowlier fellow-creatures.

As already suggested, the breeding-time of each species should be looked out for, and breeding-plumage and habits, place and construction of nests, appearance of young and food supplied by the parents, all noted. 'You have forgotten to say *eggs*!' No; but the difficulty about eggs is, it is all but impossible to train young people to show *enough* consider-

ation for sitting birds, unless you warn them off looking at eggs altogether. [*Collecting* eggs is of course unthinkable to a civilized conscience; and would, I hope, be abhorrent to Indians.] So I should feel disposed to say 'Better not know what the eggs are like, than risk never seeing the chicks hatched'. Explain how nervous the parent birds become, when huge giants of alien race are seen peering into their nursery, and tell of personal experiences of tragic desertions, and even of murder of their chicks, caused by the fever of anxiety set up by indiscreet visits.

Suggest as problems: 'Find which birds eat insects and which grain. Find any birds which prey on other birds or on animals. Find birds which eat dead flesh. Find any birds which hunt in the evening.' Many such enquiries suggest themselves, every time one talks with children who have begun to study birds. And the pooling of the results of these enquiries will lead to lessons on the structure and physiology of different types of birds, which will serve as a basis for future, more strictly zoological, study, and also for the *classification* which is an essential for every branch of natural history. But the consideration of the study of bird relationships must have an article to itself.

M. R. N. HOLMER

SANSKRIT LESSONS WITH BEGINNERS

The conversational method of teaching modern languages is no longer on its defence. Its merits have been generally admitted. In the case of classical languages its value is coming to be less and less disputed. The objections that have been levelled against it, as in the case of modern languages years ago, refer to the paucity of competent teachers and the difficulty of applying the method to advanced classes, rather than to the method itself. This amounts to saying, 'You may teach a classical language by the conversational method for the first two or three years with advantage.' Two or three years of serious work by the conversational method would be a sufficient grounding. By the end of that time the pupils will have taken a liking to the subject and will be able to read and appreciate selections from classical literature. The use of the vernacular, especially in the higher classes, has often been advocated as necessary. No sensible person would object to this, if he could obtain thereby the shortest and clearest way to the pupils' understanding. As for the other difficulty, our experience shows that the average teacher who knows the language fairly well can prepare himself for lessons by the conversational method with a couple of month's practice. All he needs is to get his tongue 'loosened' by some regular daily practice in free conversation on simple subjects.

A few years ago, an experiment on the conversational method of teaching Sanskrit was started in the Elphinstone High School under the guidance of the Secondary Training College, Bombay. The results of this experiment have been eminently satisfactory.

Sanskrit is introduced as a new subject in some of the classes of Anglo-Vernacular Standard III. Provision is made in the time table for two or three lessons a week. At the beginning, some simple verbs denoting every day actions (such as नम्, उपविश्, उत् + स्था, गम्, भाव्, लिख्, वद्, दृश्, भक्ष्, पा, कृ, श्रु, नी, क्षिप्, etc.) are taught. Pronouns like अस्मद्, युष्मद्, तत् and concrete nouns like आसनम्, द्वारम्, शालाग्रहम्, आचार्याः, हस्तः, पादः, कर्णः, नेत्रम्, मुखम्, नासिका, मस्तकम्, पुस्तकम्, पत्रम्, लेखनी, etc., are also used along with the said verbs. These words are not taught singly, in a disconnected manner, but connectedly in full sentences. In this initial stage the teacher has an assistant to help him to carry on the conversation. At first the teacher shows the objects and performs the actions and speaks the sentences describing them with proper emphasis [e.g. एषा मम लेखनी । एतद् मम पत्रम् । अस्मिन् पत्रे लेखन्या अहं लिखामि]; and then tells the assistant to do the same. The class just listen to their talk for a while and then automatically respond to the orders and questions of the teacher. It is the imitative instinct of children that is to be fully utilized in this oral work, which continues for about a month. They are always active in these lessons, co-operate cheerfully with the teacher, take delight in repeating words, phrases and sentences in chorus and realize the immediate usefulness of the new language in which they can thus freely express themselves : एतद् मम आसनम् । अहम् अत्र उपविशामि । एषा मम पाठशाला । अहं प्रतिदिनं पाठशालाम् आगच्छामि । एतद् पुस्तकम् अहं पठामि । अस्मिन् पत्रे लेखन्या अहं लिखामि । एतद् अस्माकं क्रीडाङ्गणम् । अत्र कन्दुकेन अहं क्रीडामि । etc.

For another month or two some simple, concrete topics are taken up for description : such as शालाग्रहम्-उद्यानम्-क्रीडाङ्गणम् । सूर्यः-चन्द्रः-आकाशम् । आश्रमः-मुनिः-क्षेत्रम् । धेनुः-वस्तु-दोहनम् । etc. Now the assistant's presence is no longer required, because the class is by this time thoroughly acquainted with the teacher's questions and orders, and with the use of the three personal pronouns and verbs corresponding to them. The teacher points to the object, tells its name, and gets it repeated by the class simultaneously and by some pupils individually. In this way the whole description is first orally done, the class understanding the expressions by direct association with the object, model or picture. Then the teacher reads the lesson from the book and the class reads the same after him in chorus. This step is considered to be very important and the lesson is thus read two or three times, great care being

taken about the pupil's correct and distinct pronunciation, proper pauses, right intonation, and normal fluency. Sanskrit reading has been neglected in our Secondary schools for the last sixty years and more since disconnected sentences came to be taught through Dr. Bhandarkar's and similar other books. To cultivate the art of *intelligent reading* in Sanskrit is one of the chief aims of our experiment. Conversation is just a means to that end. We do not attach so much importance to conversation as to reading, which is rightly considered an index to the real understanding of the language. After so much drill in chorus-reading the pupils are expected to master the lesson thoroughly at home and the next day their individual reading is heard in the class. In the application step of such a descriptive lesson the teacher asks detailed questions on it, or tries to fix in the new words and phrases by getting them used in various sentences.

By this time the class is ready to learn short stories in Sanskrit. It is proposed to reproduce below the actual notes of a story-lesson given to a class of beginners. The class read descriptions of birds like the peacock or the crow, but knew no sandhis.

[N.B.—Answers to questions are in circular brackets.]

Introduction

[A picture of the peacock is presented and the class is told to observe it for a minute.]

कः एषः खगः? (मयूरः)। अस्य वर्यं दर्शय। किं वर्तते अस्य मस्तके? (शिरसा)। अस्य पादौ दर्शय। किं करोति मयूरः पादाम्ब्याम्? (धावति नृत्यति च)। यदा सः नृत्यति तदा किं विस्तारयति सः? (वर्यम्)। कीदृशं तर्हि मयूरस्य रूपम्? (रम्यं रुचिरं वा)। कीदृशः अस्य स्वरः? (मधुरः)। सर्वेषु खगेषु कः रम्यतमः? (मयूरः शुक्रः वा)। साधु। मयूरं दृष्ट्वा जनाः मोदन्ते—आनन्दिताः भवन्ति। कः खगः युष्मभ्यं न रोचते? (काकः गृध्रः वा)। कस्मात् कारणात्? (यतः किल काकस्य शब्दः कर्कशः रूपञ्च न रुचिरम्)। साधु।

अधुना कस्यचिद् मयूरस्य काकस्य च कथां युष्मभ्यं कथयामि। सावधानं शृणुत।

Presentation

[The teacher then tells the following story, using the necessary pictures, gestures and intonation.]

(a) Story-telling:

अथ कश्चिद् मयूरः कस्मिन्नपि आश्रयक्षेत्रे वसति। समन्ताद् बहूनि क्षेत्राणि सन्ति। तत्र संपद्यन्ते फलानि धान्यानि च। तानि सः मयूरः भक्षयति प्रतिदिनम्। तत्र आगच्छन्ति केचिद् बालकाः सायंकाले। मयूरं दृष्ट्वा ते मोदन्ते। प्रयच्छन्ति च तस्मै खाद्यानि। तदा सः मयूरः नृत्यति वर्यं च विस्तारयति। तेन प्रसूदिताः ते बालकाः अपि नृत्यन्ति।

समीपे एव अन्यस्मिन् वृक्षे वसति कोऽपि काकः। (तं दृष्ट्वा) उपलैः ताडयन्ति ते कुमारः। तदा सः काकः चिन्तयति। 'कथं नु इदम्। यद् एते कुमाराः मयूरं विविधैः खाद्यैः भोजयन्ति

मां तु ताडयन्ति उपलैः । किं कारणं भवेद् अत्र । को वा मम अपराधः । —(विचार्य) —
आं, ज्ञातम् । मयूरस्य शब्दः जात्या मधुरः रूपं च रुचिरं वर्तते । मम शब्दस्तु जात्या कर्कशः



रूपमपि न रुचिरम् । भवतु । अद्युना एवं करोमि । स्वरः अन्यथा कर्तुं न शक्यते । परं शरीरं केनापि उपायेन अलङ्कृतं-
प्यामि' इति । ततः सः उः गच्छति मयूरं प्रति । धारयति च शरीरं भूमौ पतितानि तस्य पिच्छानि । पश्चात् स्वतृश्रं गत्वा सः उच्चैः वदति 'अहं मयूरः—
अहं मयूरः' इति ।

[The teacher asks the class if they have followed him closely; if not he tells the same story again.]

(b) Questioning:

अस्मिन् चित्रे मयूरं दर्शय । कुत्र वसति मयूरः ? (आम्रवृक्षे) । किं भक्षयति सः ? (फलानि धान्यानि च) । मयूरं दृष्ट्वा के मोदन्ते । (वालकाः) । किं प्रयच्छन्ति ते तस्मै ? (खाद्यानि—फलानि वीजानि वा) । कः अपरः खगः वसति समीपे ? (वायसः) । दर्शय वायसं चित्रे । कैः ताडयन्ति तं ते कुमारः ? (उपलैः) । कस्मात् कारणात् ? (यतः किल काकस्य स्वरः कर्कशः रूपमपि न रुचिरम्) । ततः किं करोति वायसः ? (मयूरस्य पिच्छानि शरीरे धारयति) । दर्शय पिच्छानि । तदा किं वदति सः वायसः ? ('अहं मयूरः—अहं मयूरः' इति) ।

[The teacher then reads the story sentence by sentence and the class reads the same after him in chorus. Proper pauses, right intonation and normal fluency are used in reading.]

(c) Reading:

अद्युना वाचयामि अहमेनां कथाम् । यूयं च सर्वे मामनुवाचयत ।

[The story is thus read two or three times. The class, if well trained, will then be able to read it in chorus by themselves, i.e. without the teacher's lead. This kind of chorus reading is very delightful to hear and young pupils like it. It creates confidence in them, helps their thorough grasp of the lesson and cultivates in them a taste for the language. Such chorus reading is a necessity with beginners before you can take their individual reading.]

Application

[The above story is now presented on a blackboard, the sentences in it being written in *wrong* order. The class is then called upon to read the sentences silently and to re-arrange them in *right* order.]

(a) इयमेव कथा अत्र विपरीतक्रमेण लिखिता । मनसा वाचयत सर्वाण्यपि वाङ्मयानि । कथयत च तेषां योग्यक्रमम् ।

() तेन प्रमुदिताः ते बालकाः अपि नृत्यन्ति । () विचार्य—आं, ज्ञातम् । मयूरस्य शब्दः जाल्या मयूरः रूपं च रुचिरं वर्तते । मम शब्दः तु जाल्या कर्कशः रूपमपि न रुचिरम् । () तत्र आगच्छन्ति केचिद् बालकाः सायंकाले । () ततः सः वायसः गच्छति मयूरं प्रति । धारयति च शरीरं भूमौ पतितानि तस्य पिच्छानि । () अथ कश्चिद् मयूरः कस्मिन्नपि आम्रवृक्षे वसति । () तं दृष्ट्वा उपलैः ताडयन्ति ते कुमारः । () पश्चात् स्ववृक्षं गत्वा सः वदति ‘अहं मयूरः—अहं मयूरः’ इति । () तदा मयूरः नृत्यति वर्हे च विस्तारयति । () ‘भवतु । अधुना एव करोमि । स्वरः अन्यथा कर्तुं न शक्यते । परं शरीरं केनापि उपायेन अलङ्कुरिष्यामि’ इति । () समीपे एव अन्यस्मिन् वृक्षे वसति कोऽपि काकः । () मयूरं दृष्ट्वा ते मोदन्ते प्रयच्छन्ति च तस्मै स्वादानि । () तदा सः काकः चिन्तयति । ‘कथं तु इदम् । एते कुमारः मयूरं विविधैः स्वाद्यैः भोजयन्ति मां तु ताडयन्ति उपलैः । किं कारणम् भवेद् अत्र । को वा मम अपराधः । () समन्ताद् बहूनि क्षेत्राणि सन्ति । तत्र संपद्यन्ते फलानि धान्यानि च । तानि मयूरः भक्षयति प्रतिदिनम् ।

[The teacher gets out the right order of these sentences from the pupils, who note down the proper serial numbers in the blank brackets. When the sentences are thus rightly arranged the above brackets will have these numbers written in them: (६)—(१०)—(३)—(१२)—(१)—(७)—(१३)—(५)—(११)—(७)—(४)—(९)—(२).]

(b) [If still there is some time the teacher calls some members of the class to dramatize the story. One pupil becomes ‘the peacock’, another ‘the crow’ and they stand at the two sides of the teacher’s seat. The rest of the pupils play the ‘boys’ in the story. The teacher’s help is necessary at this stage. But the next time, when the pupils have read the lesson at home and learnt it thoroughly, they can dramatize it more freely.]

V. P. BOKIL

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R. P. KAR

CORRESPONDENCE

A Suggestion

SIR,

No serious man will ever doubt how immensely difficult the task must be of both learning and teaching a foreign language like English in Indian schools. Similarly nobody will probably dispute how essential a sound knowledge of the accents of English words is for a proper understanding of English literature and especially English poetry.

How will accuracy in the matter of accents be secured? The answer obviously is:

(1) By careful teaching. If the teacher gives the correct accent on the very first occasion the student is introduced to a new word in English, and if he later ensures repetition of the same till it is fixed firmly in the mind of the boy, there is no danger of the student picking up wrong accents. True. This responsibility the teachers must shoulder.

(2) By developing what may be called 'the dictionary habit' in the student.

(3) By direct contact with the man whose mother-tongue is English.

Now the first way is obviously beset with many practical difficulties. The greatest difficulty is really the paucity of really competent teachers. We can never hope to have the necessary number of qualified Englishmen as teachers. Our Indian boys must be placed under Indian teachers even for this purpose of training in English and hence the difficulty of ensuring correct accent remains as great as ever.

In my opinion, taking all things into consideration, it would be better if we allow some devices to be used to get over this difficulty. I have to suggest one such and that is that—

Textbooks in all subjects even up to the matriculation standard should be printed with accents shown in the body of each word in a lesson. Only such books should be allowed in our schools. Such accented books will solve the problem a good deal and will bring about a vast improvement in the matter of correct accents.

D. V. POTDAR

[Readers are referred to Sir W. A. Craigie's books, *The Pronunciation of English*, 1917, 2s., and *English Reading Made Easy*, 1922, 2s. 6d., both Clarendon Press.—Editor, TEACHING.]

Dr. West on Specific Practice

SIR,

Dr. M. West has written a most lucid and valuable article on this subject, and with remarkable conciseness. He knows what he is talking about. He could not, otherwise, have been so clear and so brief at the same time. Everything he says is to the point. In attempting to supplement him I am hopeless of such perfection.

The process of an Indian child learning his vernacular is inimitably sketched by him. I should like to indicate where his system does not seem to apply. I am dealing wholly with the section of his paper entitled 'The Principle of Specific Practice'. *Fabricando fabri fimus*, (we become carpenters by carpentering), but we waste a lot of wood in the process, unless we start with clumsy but useful frames and boxes, instead of perfectly fitted tenons and dove-tails of no earthly use but so beloved of the Manual Training Syllabus. The former evokes the 'desire to improve'; the latter—well, I don't know what it evokes except exasperation.

So the child must learn to speak by speaking, and that is the Direct Method. In the home it is automatically supplied. Every mother is a past-mistress in the art. The system is as old as mothers, i.e. it is the natural, and, therefore, the right method. However it is *not* a natural demand that a child should learn two or three languages, unless he has daily intercourse with a polyglot community, as in Switzerland. There, two days a week, work and play is all in German, with an easy time for children from German homes. The next two days are wholly spent in an Italian atmosphere, vibrating to the vowels of Italy. Finally, two days are wholly French, with a good time for the little Frenchies. English in India is unrepresented by a community of English children of any bulk outside the big towns. Even these do not mix much with Indian boys unless they use the vernacular. Hence I conclude that a modified system is called for, namely, that demanded

for the acquisition of a dead language, until it *lives* for us. A teacher cannot play the part of a community.

Now a cat is a *cat* to an English boy. It is a *billi* for the Indian. Transplant the Indian to an English home, and he soon accepts *cat*, and not *billi* for pussy's surname. But if he be *not* so transplanted, what then? Why then he learns that *cat* = *billi*, and *billi* = *cat*, that is, he translates and re-translates. Later on, he transplants himself into the world of English books, and then he thinks of a cat as always *cat*, and translation naturally, automatically, eliminates itself.

Until, as in France, the primary school teacher is a well-paid specialist, India must put up with teachers to whom English is a painfully acquired second language, in which they think, it is true, but think in unidiomatic English. More than half the work of High schools and Intermediate colleges is to correct the English learnt from such teachers. 'An F.A. Fail,' as he is not inaptly termed by the jargon of such schools, is the type of teacher in the majority of the Primary schools of India. He cannot be expected to teach what he does not know.

English, on the other hand, ought not to be the medium of school teaching. Except in a home where English is spoken, it is not the medium of thought of any Indian boy till he comes to college. However, this, too, is a digression, and leads to far wider issues.

What then is to be done in concrete circumstances? Why, translation and re-translation, as I stated above. The pupil has a bit of correct English read and explained (i.e. translated to him). Then he reads it himself, translating it or not. Later on the translation (or explanation) is given to him, and he gives the English of it. With the help of his memory, it is correct English. This is not parrot-work. The explanation, or translation, or thought, is all along the guide to the English. As soon as a sufficient stock of *grammatically correct constructions* have been acquired, the vocabulary can be increased in geometrical progression, as the mind of the child develops.

The formulation of the principles of educational psychology is a thing of to-day; the practice of those principles is as old as Mohenjodaro. Wherever there has been a wisely loving mother she has practised it. Wherever there has been a successful tutor he has proved the value of his method. Now and then, the method pursued in the past by a tutor who has turned out brilliant pupils has been definitely described by him. It is then seen that he has known his educational psychology. Like M. Jourdain he has talked prose without knowing it. Such a tutor was good old Roger Ascham. His *Schoolmaster* shows that by his method of translation and re-translation he was able to teach the princesses of England their Greek to a degree

of familiarity that enabled one of them, at least, to turn to Plato for relief with the scaffold looming dark before her.

With him I urge no more than would a practical—

‘SCHOLEMASTER’

BOOK REVIEWS

A New Experimental Science. By J. G. FREWIN. Oxford University Press. 3 Vols., each pp. 95. Price, Re. 1-1-0 each.

It is not many years since the headmaster of one of the greatest schools in England wrote: ‘Instruction in physical science is, except for those who intend to pursue it professionally, practically worthless.’ To-day a modicum of science is considered an essential part of even elementary education. For this change in outlook we have to thank Huxley, Darwin, Kelvin and the other early apostles of the scientific spirit in education.

In the early days of school science the pupil was permitted to witness experiments but not to perform them himself; individual work, as we know it to-day, was practically unknown. Then, under the trenchant and stimulating criticism of Professor H. E. Armstrong, the teaching of science became ‘heuristic’ and science class-rooms became laboratories, in which the pupil was supposed to find out things for himself. Teachers became obsessed with the idea that no science was of worth to the individual that had not been through the grinding mill of experiment. So the pendulum swung far in the direction of individual experimental science and school boys were set the absurd task of trying to reproduce the scientific history of the race. The pendulum is slowly, perhaps too slowly, coming to the position of equilibrium. The teacher still holds to his faith in the value of experiment, but he has learned that science has its psychological side, its romance, its human element.

The *New Experimental Science* by Frewin is an attempt to keep this balance between the scientific and the psychological, between experiment and romance. The method, as we see it, may be illustrated from the chapter on the ‘Principle of Archimedes’. The author first excites the interest of the pupil in ‘floating bodies’ by referring to the floating test for eggs. He then suggests a few simple experiments, for example, on the behaviour of stones, wood, cork, etc., in water. The general problem of flotation is then discussed and a quantitative experiment suggested—this is left for the pupil to do himself. The results are then examined and the principle is stated. The mention of the name of Archimedes is followed by an interesting sketch of his life and, finally, some practical applications of the principle are discussed.

The method is very sound and we do not wonder that it has met with success in Scotland. Our only criticism is against the order of the subjects treated. The first volume opens with a short section on units, mass, weight, heat, expansion, etc. This is followed by the chemistry of the air with special reference to Lavoisier, Scheele and Priestley. The author defends his order by stating that the pupils preferred it to any other. So perhaps our attitude is, after all, logical rather than psychological!

The printing and general appearance of these books leave nothing to be desired. It was a joy not to find a single printer's error. We have never seen better drawn diagrams in any school textbook; they are works of art. We commend the series to all teachers of elementary science in Indian schools.

* * * * *

Teaching the Essentials of Arithmetic. By P. B. BALLARD, M.A., D.Litt. University of London Press. Pp. 260—xxi. Price, 6s. net.

There is no lack of excellent textbooks of arithmetic and no lack of good books on the teaching of arithmetic but, judging from the books used in the majority of Indian schools and the obsolete methods employed by teachers—with honourable exceptions individual and provincial, there seems to be a conspiracy against modernism in that subject. It is not easy to state the reasons for this state of affairs. It may be conservatism, some would say, inertia; but perhaps we should be nearer the truth, if we were to ascribe it to an excess of arithmetical logic and a defect of psychology. Our arithmetic has been prescribed for us by the mathematician instead of by the psychologist. We are slowly coming to see that arithmetic, the arithmetic of the school, at least, is not an abstract but a human subject, *not logic but life*. We are greatly indebted to Dr. Ballard for this fresh discussion of the subject. All who have read, and enjoyed, his books on 'Mental Tests', 'the Changing School', etc., will come to this book with expectation and will not go away disappointed. Dr. Ballard is never obscure or dull, always convincing and provocative. He is as truly human as he believes his subject to be. In this survey of the essentials of arithmetic Dr. Ballard discusses, in a balanced way, what he has called the English and American views of arithmetic. The English view is deductive. No unexplained process is allowed to be taken on trust, nothing allowed to escape the grinding of the logical machine. The American view is inductive. Reasoning must start with concrete facts and end with concrete facts and arithmetic is merely a habit-forming process. Dr. Ballard aims at reconciliation, to use intelligence when it ought to be used and to resort to rule-of thumb when it cannot. He applies this doctrine of give and take to the teaching of the fundamental

processes and concepts of arithmetic. He never halts between two opinions, as may be judged from the following: 'I think the method of teaching subtraction by decomposition a vicious method.' We have not space to discuss this excellent book in detail. We commend to the attention of teachers the chapters on the multiplication and division of money, long and short division, standard form and the rule of three. We wish that all teachers would study and put into practice the methods recommended in this book for the teaching of 'proportion'. The loyalty that Indian teachers have to the 'dot' method is both pathetic and tragic.

The last chapter of the book is on a subject not usually included in books on elementary arithmetic, namely, 'Incommensurables'. It ends with a true Ballardian touch, 'An incommensurable never ends. A book does. This one ends here.'

BOOKS RECEIVED

The Teaching of Arithmetic. By H. R. HAMLEY. Macmillan's Educational Pamphlets. Pp. 47. Price, Annas 8.

School Discipline. By H. R. HAMLEY. Macmillan's Educational Pamphlets. Pp. 24. Price, Annas 4.

Prose of To-day. Issued by the English Association. Longmans, Green & Co. Pp. 191 + xxxii of biographical notes. Price, 2s. 6d. A good selection from modern prose authors.

Foundation Exercises in Geography. By E. G. R. TAYLOR. George Philip & Son. Pp. 32. Price 6d. each. Part I, British Isles. Part II, Europe. Part III, The Americas. Part IV, Africa, Asia, Australasia. Part V, The British Empire. Specially drawn maps with 'completion tests' on each map, for revision work in geography.

TEACHING

A QUARTERLY TECHNICAL JOURNAL FOR TEACHERS

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THE BOY SCOUT MOVEMENT IN INDIAN SCHOOLS

[Mr. Pearce has been an active worker in the Scout movement almost from the time of its inception in England. His first troop was in London. On coming out to work in Ceylon, he started the first school troop in Ceylon, and was in charge of the Baden-Powell Scout movement in Ceylon for several years, till he came to India, at the request of Dr. Annie Besant, to organize the Indian Boy Scouts Association. He remained its Chief Commissioner for three years, during which it spread far and wide in many parts of India. It was then amalgamated with the Baden-Powell Association. Mr. Pearce subsequently took up educational work in the Holkar State, where he was also Chief Commissioner of the Holkar State Scouts. For the last few years he has been Principal of the Kayastha Pathshala, Allahabad, where he has been in touch with the work of the Seva Samiti Boy Scouts Association, which is widespread in the north. He has therefore had an almost unique experience of the workings of the Scout movement.]

I

Scouts and 'Brussels Sprouts'!

JUST before my schooldays were about to come to an end the Boy Scout movement was started in England, and I well remember joining with my fellow-students of the senior form in fooling the scouts. Very fine fellows we thought ourselves, and we used to call those 'prigs' in sham uniform 'Brussels Sprouts'—though what likeness we could discover, even at that romantic age, between the innocent boys and the prosaic vegetable, I really do not know. It was no doubt, like most schoolboy jargon, the invention of some bright spirit whose wit had not yet grown beyond the ability to perceive a rhyming resemblance between 'scout' and 'sprout'! Anyhow I *was* numbered among the scoffers—let me confess it.

In later years—not many years later, either—I was among those who thought that they had found in Scouting *the* panacea for all ills

and defects of our educational system. It is a useful delusion for a scouter, and I hope that some of my scout-readers of this magazine are still under that delusion. It will do them no harm for a while; they will grow out of it, sure enough; and, in the meantime, the Scout movement will benefit from their enthusiasm, and will not be seriously the worse for their blindness.

Well, having made a challenging statement like the above, I suppose I must set to work to justify it by facts. Let me try.

I will clear the ground, first, by an attempt to show in what ways Scouting, if not a panacea for all ills, is a valuable supplement to the ordinary work of education. Next, I will point out some things in which, I think, it has so far failed, at least in India. Lastly, as, in the right scout spirit, I should be glad if this article might prove to be a 'good turn' to any scouter, or anyone else for the matter of that, I will suggest a few ways in which my experience leads me to think we may remedy the failures and make the movement even more useful than it already is.

Red Corpuscles and Old Fogeys

First and foremost, and far beyond anything else in importance, is the stimulus which Scouting gives, or ought to give if it is *real* Scouting, to the spirit of adventure, finding its readiest expression in hiking and camping. If you, scout-reader or fellow-schoolmaster, have *not* found this so, in *your* troop or *your* school, then I make bold to say that you have not discovered what *real* Scouting is, however many training camps or Wood Badge courses you may have attended. Of all the troops that have died, three-fourths have met their fate because their leaders will not or cannot grasp this simple fact—that *the spirit of adventure is the life-blood of Scouting*; and the red corpuscles of that life-stream are hikes, expeditions, tramps, camps—any sort of thing which will get you beyond the four humdrum walls of your classroom or your home. (The white corpuscles are social service, but of that more anon.) It is a sad sight to see the troop (usually a school troop), which was started with such enthusiasm, fading away into the feebleness of anaemia. But, on the other hand, what can be jollier than to see, as I have seen, dyspeptic and diabetic old fogeys of schoolmasters undergoing a regular rejuvenation as a result of getting a move on in the open air with their youngsters? Of course, it is a 'frightful fag' (everything to be got ready after school-hours!), but when you come back, you feel that it was well worth while. Is there any schoolmaster who has tried it who will disagree?

And, if it is this to the schoolmaster, what is it to the boy? Oh, in India we terribly lack the spirit of adventure! We lack it because it is not encouraged in our boys and girls. And it is not encouraged in

them because most of the people who teach them were similarly taught—to be content, to be docile. Blame the system, if you will (I agree with you); but then, let us not *be* content, let us not *be* docile. Let us change. We may not be able to change the system, all at once. We *can* at least change ourselves. Get out of the four walls! They are the symbol of conventionality. India was not always so. She had her adventurous youth. Many a time the spirit of adventure has been re-born in this land. Will it not come to birth in our midst again, if we prepare a home for it?

The presence of this spirit of adventure, bred by real Scouting, is a great asset in any school. It will give rise to all sorts of enterprises; they may not all be wise ones, but a tactful headmaster will understand the value of them, and guide them aright without seeming to do so. The mediæval type of schoolmaster (of whom we still have plenty) will crush them with scorn or disapproval—and with them the germs of God only knows how many hopes of creation. When I was a boy at school, some of us, under the influence of the *Swiss Family Robinson* type of adventure-story, got the idea of building ourselves a little hut to live in, and of furnishing it all with our own handiwork. I happened to be rather keen on carpentry at that time, and, as a senior student and a prefect, I had access to the key of our school workshop. In my enthusiasm for our project, when the headmaster happened to be absent for several days, I invited the 'Swiss Family' to have the run of the workshop. When the headmaster returned he found that our energies had exhausted about half the stock of school timber, though we displayed a wonderful assortment of tables, chairs, stools and cupboards, by way of exchange. He was a sensible man, however, and, though we all got our whacking for it, he allowed us to keep our furniture, which, needless to say, was our pride for years after. And I still have the original plans of that hut!

Spotting Glass upon the Road

Next in importance among the benefits of Scouting, I would put the habit of observing the needs of others, and the definite training in usefulness. Without the former, the latter is of comparatively little value; the two must go together, and this is a point which quite a number of our scouters miss. Take our first-aid training, for example, or even a simple thing like 'Kim's Game'. In many troops these are regarded merely as qualifications without which the Second Class Scout Badge cannot be obtained. But half their interest and almost all their value are lost if they are thought of only in this way. The training of which 'Kim's Game' is the beginning can, and should, be carried on into forms of observation which may definitely add to one's public use-

fulness. For example, if you begin by being sharp enough to score 23 out of 24 in 'Kim's Game', you may go on to things like spotting bits of glass on the highroad (removing them, to save cut feet and punctured tyres, becomes a habit to a good scout)—and to still more important things, such as noticing an almost broken trace and thereby averting, perhaps, a serious accident.

First-aid, and specially the Ambulance Badge training, ought not to be a mere means of decoration, as it often is. Let the qualified ones form an Ambulance Patrol; furnish them with the simplest and cheapest remedies—permanganate of potash, vaseline, clean cotton—and let them go out, once a week, for a couple of hours in the evening, to attend to cuts and sores among the poorer people of the neighbourhood. More serious cases may be recorded and reported; the scouts should not attempt to take the doctors' place, but they may be extremely useful in the above-mentioned ways, besides earning the troop a good name.

Anti-malaria work, such as the Seva Samiti Boy Scouts are carrying on in many parts of north India, is another variety of such usefulness combined with the habit of observation.

There are, of course, many other benefits which a school may reap from having a school troop in its midst. But most of them, I think, are such as can be obtained by other means; they are not the exclusive properties of Scouting. Such, for example, is the training in responsibility. The patrol system, the working of the troop by the court of honour, are no doubt among the very best possible ways of developing this quality in our boys, but there are plenty of other ways of teaching it, such as the prefect system, a school parliament, letting the students manage their own games, self-government in the mess-system in hostels, running a school shop on a co-operative basis, and so on. I have tried every one of the above, so I am not speaking merely as a theorist.

There are many schools, however—no doubt by far the majority in India—in which it will be years, if not decades, before such methods are introduced. For these, the presence of a real scout troop is an inspiring force in the right direction. This is particularly the case in village schools, and in this connexion the experience of the Seva Samiti Boy Scouts Association is a valuable indication of future possibilities, and may be useful to fellow-workers in other parts, if they do not already know of it. The Seva Samiti Association has had the advantage of not suffering from the unpopularity which has, unfortunately, attached itself to the Baden-Powell Association in some places owing to its connexion with Government officials. The result of this has been that the Seva Samiti has gained great influence among the people, especially in the United Provinces, and in many districts the boards make annual grants

towards the scout funds, and enable the Association to organize scout troops in connexion with the schools which are under the boards, as well as to appoint whole-time organizers to guide and keep up this work. In many villages, the advent of the scout troop has meant much more than a mere scout training to a few boys. It has provided an example of what organization can do. It has created a social atmosphere. It has helped not only the scouts, but others, through their example and assistance, to organize recreative activities, whether of the old style, such as *akhāda* or *fari-gadka*, or of the imported variety, such as football. It is beginning to improve the village sanitation. In such work there are enormous possibilities of good.

II

Let me turn now, for a little while, to consider a few points in which, as I think, the Scout movement has so far failed in India to make good.

The Distillation of—Politicians!

Speaking quite generally, and gladly admitting that there are a good many exceptions, I should say that it is in the troops of our city and town schools, the High and Middle schools, that we have failed most frequently. The exceptions are due to the good fortune of getting the right man as scoutmaster. In the majority of such schools the right man is not the scoutmaster, and this is the main reason for failure.

Now, it is of no use to blame the school authorities for this. In the first place, the 'right man' may not be there at all. There are, unfortunately for India, too few schoolmasters, as yet, who possess the scout spirit, the spirit of adventure, the untameable spirit. Our schoolmasters have themselves been only too well tamed. The 'right man' for running a scout troop successfully, for inspiring the boys with the spirit of adventure, is more often to be found nowadays not among schoolmasters, but among politicians. Let me not be misunderstood. I do not want politics to be mixed up with scouting. My contention is a simple fact, with no intentional political implication behind it. It is merely this. Unfortunately for Scouting, the adventurous spirits, at present, are mostly, and quite naturally, distilled off by the heat of politics, and used up in work which they feel, in the present state of things, to be more directly useful to the country than educational work. This is a great loss to all kinds of educational work, Scouting among them. But it cannot be helped. These men will only be released for our work when the political struggle is over. In the meantime, we must carry on as best we may with those who remain. With even a few adventurous spirits among us we may do much.

Some of my readers may not relish the above remarks. I do not wish to enter controversial ground; perhaps I am wrong; I only state my own experience; let others judge. At the time when we started organizing the Indian Boy Scouts Association, in 1918, the political arena had hardly begun to claim the younger men. The political workers were mostly elderly and middle-aged men, too old to help us actively in Scouting. The younger men—young lawyers, young doctors, young industrial and commercial workers, besides the older students of universities and colleges—the men who now are absorbed mainly in political work—these were the men who, in those days, we found coming forward as prospective scouters. And splendid scouters they were, for they had earnestness, enthusiasm, the spirit of adventure—the very qualities which made them a force in public life, later. But, as time went on, and the political struggle grew more bitter and more keen, many of these men felt themselves called to the arena of politics. Only those passed into the amalgamated I.B.S.A.—the Baden-Powell Association—who were either not interested in politics, or unable through their position to take part in it, or (these were the men who counted most, and still count) those who sincerely believed that they could help India more through educational work, as scout-workers, than through political work.

One point of importance emerges from this contention, if my facts be sound. If and when we can find the 'right man' *outside* the school, we should not decline his services—even if he be a politician! There seems to be a tendency for schoolmasters to be afraid of non-school troops. As a schoolmaster to the backbone, I have a sneaking sympathy for this feeling. I admit that, whenever possible, I should prefer my boys to join in activities run by, and controlled by, the school authorities. But we must try to take a broader view, and base it on the benefit of the boy, first and foremost, and not merely on school loyalty. If the 'right man' is not to be found on our own staff, it is surely a dog-in-the-manger policy to deprive the boys of the benefits of Scouting by discouraging the formation of a town troop, run by an outsider. And there is another consideration. It is high time that we got over our childish fear of the 'political agitator', and took a more tolerant view. A man may hold totally different political opinions from our own, and yet be a very fine scouter! The very people who accuse such workers of 'mixing up Scouting with politics' are themselves doing that very thing, in their own minds. It cuts both ways, if it cuts at all.

* * * * *

But the failure of the High school troop is not always due to the non-existence of the 'right man' on the school staff. Sometimes the

'right man' is there. But then, you may be sure that he will be in demand for a hundred and one activities, and Scouting may not be lucky enough to come first in the field. This often happens in a big school where there are many activities. And, in such cases, many of the needs of the boys are provided for by means of these activities, and so there is less need for Scouting. 'Less need' for it, please note; not 'no need'. For there is always room for one aspect of real Scouting—the one with which I begin and end all appeals to scouters of all kinds—that is, *the Outdoor Life*. Even the High school troop, with all its handicaps, will *not* be a failure, if only we keep up its supply of red corpuscles—the Outdoor Life.

Drill-masters and Romance

Perhaps I should mention one other point which is here relevant. Drill-teachers and physical instructors are, by the nature of their training, perhaps, not generally very romantic or adventurous persons. (If this be an insult to any individual drill-teacher, I beg his pardon and ask him to regard himself as the honourable exception.) At any rate, they are not usually found to be great encouragers of camping and hiking. Consequently, they are, in most cases, the most unpromising kind of people as scouters. But, it usually happens, I notice, that whenever inspectors of schools exert a little gentle persuasive influence upon headmasters, to encourage them to send members of their staffs for training as scoutmasters, it is generally the drill-master who is the chosen sacrifice. This is really a great mistake. We *must* get the adventurous people—and I am half afraid that adventurousness is born and not made. For my part (speaking as a headmaster, mind you, with a full sense of responsibility), if I were asked to select a man for Scouter's training, I would hit upon the hottest firebrand on my staff, on the principle that it is best to make use of energy. Besides, camp life would cool him down. And, anyhow, there are not many very dangerous firebrands in the educational service—worse luck! I would rather let my boys run a risk of being scorched than have their ardent spirits subjected to the constant streams of cold water that are a feature of many members of our profession nowadays.

* * * * *

There is one other grave defect in the Scout movement in some parts of India which I cannot pass by without comment, if I am to be a frank as well as a friendly critic. I shall merely state the facts as I see them.

Hard Luck for the Officials!

Sir Robert Baden-Powell himself has always been emphatic in declaring that the Scout movement should not be an official organiza-

tion. Provincial Chief Scouts and other high officers in India have repeated the same. But this will be but a pious wish, whatever we may say, so long as it remains the practice to have as Scout Commissioners, or as presidents or chairmen of local associations, high officials of the Government, of whatever colour or variety. It is, I admit, hard on a well-meaning Government official who wants to help the Scout movement to be debarred from Scout office only because he has the misfortune to hold a lucrative Government appointment. But, if he really wishes to place the interests of the Scout movement first, he should be willing to stand down. It should not be difficult to see the reason why. It is an unfortunate, but also an undeniable, fact that if a Government official of great influence is placed at the headship of any kind of public work, lots of people will pretend an interest in that work, not because they really care, but merely to please him. And I am prepared to maintain that this is what very often does actually happen in the Scout movement in places where district magistrates, inspectors of schools, and other high officials are at the head of local associations. I am not blaming those officials. Only, I am sorry for the associations. Sycophants do not make good scouters.

It may be said: This policy enables the associations to get money and backing. Probably that is true. In my opinion, the moral loss outweighs the material gain. In the long run everything depends on the kind of scouter you get, and not on money or prestige. I do not say that there are no good scouters where officials lead the associations; it would be libellous and untrue. But I do say that, in such circumstances, there is much more likelihood of the wrong type of man coming in.

It may be asked: Is there not the same objection to getting the patronage of local bodies, such as district boards? My answer is: The danger is less. District board officials are elected; they have much less power. But, the fewer officials of *any* kind in positions of prominence in the Scout movement, the better for the movement.

Conclusion

Let me now conclude with a few constructive suggestions, in addition to those which I have already incidentally made in the other parts of this article.

My first is: There should be more all-India co-ordination of the movement, at least for consultative purposes. We have lost an absolutely invaluable feature through the complete decentralization which followed the amalgamation of the Indian Boy Scouts Association with the Baden-Powell Association. The officers of one province now

know what those of other provinces are doing only through the cold medium of print, if indeed they take the trouble even to read through the various provincial Scout magazines at all. If any of my readers happens to be one of those who attended either the first or the second All-India Scout-officers' Conference, organized by the I.B.S.A., in 1919 and 1920, he will understand what I mean when I say that, quite apart from the actual practical usefulness of the daily exchange of ideas which we had there, those splendid camps, on the Lonavla slopes, and in the depths of the Māhārāndi forest, brought us an inspiration, through fellowship with nature and with fellow men of other parts, which could be got in no other way, and which we shall never forget. It is nothing short of a literal fact that each one of us went back to our Scout work (and perhaps to our other work, too) with fresh vigour and new heart. I never meet an old I.B.S.A. officer who was present at one of those camps who does not refer to them as among the most glorious experiences of his life. It may not be desirable nowadays that we should have an all-India organizing or inspecting officer, but it certainly is desirable, in my opinion, that we should have an All-India Scout Organizers' Camp, to co-ordinate our activities and exchange ideas, once a year. Provincial jamborees, on however vast a scale, do not, and cannot, take the place of such opportunities for quiet and comradely exchange of thought.

From one extreme, let me pass to the other—from all-India to the village. It is a mere platitude to say that any lasting influence in India must be one which effects a change in the outlook of the villager. The Scout movement, like any other piece of work, will be no more than a bit of driftwood on India's tossing river of life unless it really touches the heart of the village. How is it to do this?

It is a matter on which I should not like to dogmatize, for my experience of this part of the work has been less than of most other parts. Many experiments are necessary. In a question of this kind the exchange of ideas and experience possible through an All-India Scout Organizers' Camp would be invaluable.

Here, I will content myself with mentioning some of the methods used by my friends of the Seva Samiti Boy Scouts Association; they have been found very successful in many villages in the United Provinces. I have already referred to the spirit of sociability and co-operation resulting from the presence of village scout troops. It will be a long time before we can hope to have a troop in every village, even if it were a possibility. There is no reason, however, why a troop should not make periodical hikes to the villages in its vicinity, not only to enjoy camp life or a day's outing, once a week, but with the definite idea of contributing something to the pleasure and profit of the

villagers themselves. This is actually being done by Seva Samiti troops in some districts of the United Provinces. The camp fire is found to be a great attraction, and 'music hath charms'. The Seva Samiti has led the way, from early times of Scouting in India, in popularizing Scout songs in the vernaculars, and these songs, together with other patriotic songs and folk-songs, make the boys readily welcome. The next step is to introduce a little health propaganda and some practical demonstrations of what can be done to improve matters in that very village.

So far, we have looked at the question mainly from the point of view of helping the villager. But the benefit to the town scout who takes part in such visits should not be overlooked. One of India's greatest dangers is that of all countries which are quickly developing an '*intelligentsia*'; I mean the danger of producing an impassable rift between the educated classes and the villagers. The rift can only be prevented from widening by the educated ones learning how the less fortunate feel and live. And this can only be done by mixing freely—not by reading books.

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One final remark and I have done. It is easy to say that Scouting in India will not be successful unless it is Indianized. Many of us who have helped to organize the movement have been saying this, and trying to do it, all along. But it is worth while to remember that 'Indianizing' the Scout movement is not in the least like 'Indianizing' the Civil Service. The colour of the skin matters very little; it is what is *under* the skin that matters. It is a matter of understanding, a matter of the heart. Unless those who lead the Scout movement really *feel* what young India feels, they are not likely to get the response from young India which 'B.-P.' gets from young Britain and Dan Beard, from young America. To translate *Scouting for Boys* and other books is essential, but merely translating them, even if Indian examples are substituted for British ones, is not enough. When 'B.-P.' wrote that book, he was full of a burning zeal to utilize the splendid material which he saw running to waste in British youth. It is because of that that the book lives. You simply cannot translate that spirit into an Indian environment, any more than you can make an oak-tree flourish in the hot soil of the Deccan. You must get someone, with an equally burning zeal to help young India, to write an Indian *Scouting for Boys*. If it is done in the way I mean, there will be no danger of a lawsuit for infringement of copyright.

Well, we cannot all be literary geniuses as well as scouters. But, if we are scouters, we ought to have that zeal to help young India burning within our hearts, filling us with 'divine discontent' for anything

less than the best, the best *of* ourselves, and the best *for* our youngsters. And, if we have a full measure of that zeal, it may not make us able to rewrite *Scouting for Boys* for India, but it will surely inspire us to make our contribution to Scouting for boys in India—even if that contribution is only to have inspired an obscure handful of boys to love and serve their country better. And that 'only' is a *very* big thing to have done, as the student of TEACHING is sure to know.

F. G. PEARCE

THE PROJECT METHOD IN THE SECONDARY SCHOOL

THE word 'project' is a comparatively recent arrival in the realm of educational terminology. Although the term has been used and the 'project method' applied in certain schools in India, the majority of teachers are only just beginning to ask: 'What is a project?' 'Is the project method really new, or is it merely a new name for something quite familiar to all progressive teachers? We are all familiar with problems, schemes and plans in teaching.' We may best answer the first question by taking an illustration from actual experience in an Indian school. The answer to the second question will emerge as we proceed.

A Project Illustrated

The class had just learned that the area of a rectangle is obtained by multiplying the length by the breadth of the rectangle. Instead of following the usual practice of giving the boys a score or more of unreal drill problems on the areas of rectangles, the teacher suggested a project in the following terms: 'Boys, our school building badly needs repainting. I wonder if you could find out how much it would cost to repaint it, with one coating of water paint on the walls and two coatings of oil paint on the doors, windows and dado!'

The boys, who were accustomed to group-lessons work, immediately set to work and suggested a plan of action. The class was divided into four groups, with a 'captain' in charge of each. As there were 28 rooms in the school, each group was made responsible for 7 rooms. A discussion followed regarding the data required. It was decided that each group should find: the length, breadth and height of each room, the height of the dado, the number and dimensions of doors and windows, the price of water painting (including labour), and that of oil painting (for ceilings, doors, dado, etc.), and the contractor's reasonable profit. During the next few days the required measurements were taken, the costs of water paint and oil paint were ascertained from several house decorators in the bazaar (the average of these was

taken), and the contractor's reasonable profit was, after some discussion, fixed at 8 per cent of the total cost. When all the measurements and other data had been collected, the class met to discuss certain difficulties that had presented themselves. It was found that some of the rooms had walls of triangular section. This necessitated the finding of a formula to calculate the area of a triangle. Again, it was found that the area of the sloping ceilings could not be calculated, as the slant side, being inaccessible, could not be measured. This necessitated the working out of a method of obtaining the diagonal of a right-angled triangle when the other two sides were given. The boys overcame the difficulty by drawing triangles to scale, but later on sought the help of the teacher and became intensely interested in his exposition of the famous Theorem of Pythagoras. Finally, the results of all four groups were tabulated on the blackboard, and several discrepancies were discussed. It was remarkable that the total cost as calculated by the class was only Rs. 70 less than the contractor's estimate, amounting to several thousands. This difference the class conveniently adjusted by giving the contractor a bigger profit, which, they decided, was only a fair thing! The percentage increase necessary to make the accounts balance was then calculated.

The above illustration has most of the characteristics of a typical project. It is a problem of real life planned and carried out in a social environment and in its natural setting.

Some projects last for months, even for a whole school year; others, like the above, for only a few days. The former are sometimes known as *major projects*, and the latter as *minor projects*. A major project may, and generally does, contain a number of minor projects. In the Rural Training School in Moga, Punjab, the major project for one of the Primary classes is the building of a model village home; minor projects, such as the making of moulds for bricks, and looms for weaving mats and curtains, are carried through when working out the main project.

Definition of 'Project'

It is difficult to discover when and where the word 'project' as an educational term originated. Prof. W. H. Kilpatrick, of Columbia University, to whom we can give the credit of formulating the project into a method, writes: 'It is to this purposeful act, with the emphasis on the word purpose, that I myself apply the term "project". I did not invent the term, nor did I start it on its educational career. I did, however, consciously appropriate the word to designate to myself and for my classes the typical unit of the worthy life described above.'¹

¹ 'The Project Method,' by W. H. Kilpatrick, *Teachers' College Bulletin*, October, 1918.

The most generally accepted definition of the project is that given by Stevenson: 'A project is a problematic act carried to completion in its natural setting.'¹ It is doubtful whether this is any better than Kilpatrick's original definition of the project as 'wholehearted purposeful activity proceeding in a social environment'.

These definitions taken together suggest (1) a problematic situation, (2) purposeful activity, (3) a natural environment, (4) a completed task, all of which are essential to a well-planned project.

Psychology of the Project Method

Most writers on the project method seem to find it necessary to preface their discussion of the psychology of the method by a review of Thorndike's 'Laws of Learning',² which they sometimes refer to as *the laws of learning*. This is unfortunate, because it renders the subject almost unintelligible to the student who is not accustomed to think in terms of Thorndike's terminology. As a matter of fact, the project method may be explained in terms of any rational laws of learning that are true to life, for *the project is an echo of life*, of life that is significant and worth living. Life is full of projects.

Let us think, for a moment, of life that is worth living, of a life-work that is worth doing. What are the characteristics of such a life-work? Are they not the following?

1. *Purpose*. Life that is worth living and work that is worth doing must have a purpose, an objective or end. In a certain sense it is true that all life is purposive, for it has an urge behind it; but life, to be worth living, must be truly *purposful*, directed towards some goal or objective. Not only so; it is essential that the objective should not be something immediate, something easily grasped. It must be a remote objective, for it is only in the pursuit of a remote objective that life acquires momentum. There can be no real zest in a hand-to-mouth existence, in the satisfaction of immediate needs.

2. *Significance*. Life's objective or end must have significance; it must have meaning or value. We cannot realize life, if we are pursuing an objective of no significance or meaning to us. An objective that is not *ours* will never give us the will to live. So life must have a satisfying objective, one that will satisfy our deepest individual and social needs.

3. *Interest*. An objective that has meaning or value will, of necessity, be absorbing. It will rouse us to zealous, wholehearted activity. Absorbing life is always richly filled; it has no meaningless blanks, no waste spaces. It compels us to lose ourselves. Only in losing ourselves can we find life.

¹ *The Project Method of Teaching*, by J. A. Stevenson, p. 89.

² *Educational Psychology*, by E. L. Thorndike, Vol. II, pp. 1-16.

4. *Spontaneity*. Life that is worth living is not fixed or determined; it is, in the Bergsonian sense, a becoming, an unfolding, a continuous creation. Such a life is full of variety, full of glorious uncertainty. So, also, is the work that is worth doing. It invites us to search, explore and experiment, for only thus does the universe yield her secrets. True life is never strictly ordered, never 'cut and dried'; it is spontaneous. The law of life is evolution.

What is true of life is also true of education, which ought to be not merely a preparation for life, but life itself. 'The goal for education is to continue and enrich this life process by better thought and act, and this in turn is education again. Education thus is in life and for life. *Its goal is internal in the process*. Such a goal is the only one that fits a growing world. Continued growing is its essence and end.'¹

The project is an attempt to relate education to real life and to the work of a real world. And, like life that is worth while and work that is worth doing, it has *purpose, significance, absorbing interest and spontaneity*. A word on each of these:

1. It will be acknowledged by most teachers in India that, as far as their work is concerned, they have no satisfying objective. The aim and end of education in India is *examination*. In other words, the objective is to be found not in the subject itself, but in something extraneous, in the testing that lies ahead. So teachers' notes, annotated guides and rule-of-thumb methods are the order of the day. The project comes to change this, to place purpose where it ought to be, in the problem, in the project itself. It comes to release spontaneous activity for the pursuit of a living objective.

One great defect of our educational system is the lack of a long objective. The year's work is divided into parts and portioned out as lessons. Students in training colleges are taught to think in terms of 'lessons'. Their critics decide that lesson to be good which has been effectively and artistically 'finished' in 40 minutes. The objective of the ordinary class lesson is immediate, that of the project remote; and the remote objective alone demands continuous thinking. Like the successful business man, the project child cannot get away from his job; he has a *long objective*, and he must keep his eye upon it.

2. When the examination is made the aim and end of education, it is inevitable that the examination, and that alone, will become, in the majority of cases, the only thing of any real significance to the student. The meaning and value of the thing learned are estimated in terms of something outside the thing itself. How many of us have managed to escape the remark, 'Sir, that is not in the syllabus,' and, because it was not in the syllabus, it was not considered worthy of

¹ *Education for a Changing Civilization*, by W. H. Kilpatrick, p. 134.

attention. There can be no such thing as 'appreciation' where there is no real sense of values. The meaning and value of the project are found in the project itself. Thus the project is pursued, as knowledge, truth or art ought to be pursued—for its own sake.

3. Much has been written in educational books on the subject of 'interest'. It has been said, with truth, that the problem of education is the problem of interest. It does not matter much whether we are able to discuss the psychology of interest or not, but it does matter whether we recognize the things in which a child is usually, shall we say, *naturally interested*. The best training a teacher can get is to study children as they are absorbed in interesting play or work. Without exhausting the list, we may note some of the things in which a child is usually interested :

- (1) In life itself, in the study of the origin, production, processes, needs and ends of life ; in animals, birds and plants.
- (2) In human relationships, in the family, the home and the community.
- (3) In human work, in human endeavour and achievement.
- (4) In activity, in movement, either in himself or in others, in play.
- (5) In his own possessions, and those of others.
- (6) In the good, the true and the beautiful ; in song and story.
- (7) In the unexplored, the unknown, the mysterious.

These are interesting because they appeal to the child's fundamental instincts.

The project is to the child a life experience, and because it is a life experience and in a natural setting it is absorbingly interesting. 'The provision for the natural setting of the teaching situation is the distinct contribution of the project method.'¹

4. If an uninteresting lesson is dull to the pupil, it is probably utterly wearisome to the teacher. He has probably taught the same thing in much the same way many times before. He knows exactly what is to come next, exactly where the pitfalls are, and the difficulties. How many teachers have ever experienced the joy of adventure, of not knowing what to expect next? Very few. Life to them has no spontaneity, nothing unpremeditated or unforeshadowed.

The glory of the project is its spontaneity. No one knows exactly how it will turn out ; it has no 'answer' in the answer book. The project evolves, unfolds itself, as it progresses. It is in a state of 'becoming' almost to the end. This is the real fascination of the project ; it is, like life, always developing, always evolving.

¹ *The Project Method of Teaching*, by J. A. Stevenson, p. 90.

Types of Projects

Our discussion of the child's natural interests suggests a classification of projects according to types. We shall enumerate them, without enlarging on them :

1. The Construction Project, in which the purpose is to embody some idea in concrete form.
2. The Heuristic Project, in which the purpose is to find the solution of a problem or straighten out some intellectual difficulty.
3. The Appreciation Project, in which the purpose is æsthetic enjoyment of literature, art or music.
4. The Proficiency Project, in which the purpose is the attainment of skill.

The Project in the Secondary School

It is true that the project method is more strictly applicable to the Primary than to the Secondary school. This is possibly due to the fact that in many countries an examination of the type of the matriculation examination is the main objective of secondary education. It is possible, however, to utilize the 'man power' of the Secondary school in the working out of individual and social projects. One has only to read the life of Sanderson of Oundle School to realize how much can be done to relate the life of the school to the life of the world outside. The Gary Schools of America are more or less definitely organized for the same purpose. But, even within the limits of the ordinary matriculation syllabus, it is possible to introduce interesting problems which, although not satisfying *all* the canons of the typical project, will be found to embrace the most important of them. Suggestions for individual and group projects for the Primary school and the lower standards of the Secondary school will be found in some of the books enumerated below ; we shall mention a few suitable for middle and higher standards of the Secondary school. Many of these have been carried out with interest and success in Indian schools.

English (or any Modern Language)

1. Make an anthology of poems dealing with nature, with adventure, with patriotism. (Each boy to recite the poem of his choice and discuss its merits.)
2. Make an anthology of poems that you admire, and write short appreciative notes on the poems chosen.
3. Make a collection of interesting short stories, of humorous stories, of descriptions of scenery.
4. Dramatize a play : (a) a children's play, (b) a modern play, (c) an original play, (d) a play of Shakespeare (in English schools).
5. Compile a class magazine.
6. A project on the evolution of the book, from hieroglyphs to the modern book.
7. A project on types of literature, with examples. Comparison with the class reader.

8. A description of various games played in India, social customs, festivals, etc., written for the benefit of a boy in China.
9. A vocabulary project—a list of words dealing with particular topics.
10. A conversational guide book for an Indian traveller visiting England. (Translated into the vernacular.)

Geography

1. Make a relief map of a country or section of a country. Make a map of a country, with specimens of commodities, industries, etc., attached.
2. Make a geography book of a country, with pictures (from magazines, newspapers, etc.), descriptions of the country and its peoples, historical incidents.
3. Make a map of the world, showing important trade routes and exchange of commerce.
4. Meteorological observations, sun shadow observations, star maps, etc.
5. Make an album of the mountains of the world in pictures, the main rivers of the world, industries, manufactures, etc.
6. Write a pamphlet on transportation in various countries; on foot, horse-back, carriages, railways, boats, etc. (with pictures).
7. Write a pamphlet on the cotton supply of the world, the wheat supply, the sugar supply, etc. (with pictures).
8. Make a model of a country scene in Sweden, a farm in Australia, the Suez Canal, the Panama Canal.
9. Make a set of apparatus (compasses, clinometers, telescopes, etc.) for elementary astronomical observation. Make a chart of the sky for different times of the year. Make an 'astrosphere'.
10. Make a series of maps and graphs showing rainfall, temperature (summer and winter), vegetation, etc., of different countries.

History

1. Make a collection of coins, historical records, pictures of historical characters, pictures of the world's great battles.
2. Draw a series of maps of a country or of a continent, showing the changing boundaries of nations.
3. Write a treatise on the Great War in its various theatres.
4. Write a pamphlet on Indian administration or on a great administrator.
5. Draw a series of maps showing the phases of the Battle of X. Draw a series of graphs or charts showing the rise and fall of power in certain topics.
6. Construct a series of models of interest in history lessons—shields, swords, forts, etc.
7. Write a booklet on the architecture of Shah Jahan (with illustrations), the social conditions in the time of Shivaji, etc.
8. Compile or draw a series of pictures showing the changes in dress, means of travel, navigation weapons of war, etc.
9. Represent the history of India (for a certain period) in pictures and diagrams.
10. Prepare an illustrated guide book for the city of Delhi (or your own city), with special reference to its historical records.
11. Trace the causes of the French Revolution, the Reformation, the Great War.
12. Prepare a drama of a given incident from books of original sources or documents of history. Dramatize the work.

Mathematics

1. Find the cost of laying down a tennis court, including excavation one foot deep, stone and mortar filling and stone-dust top-dressing.

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2. Find the cost of erecting a building of a certain description.

3. Make an estimate for installing electric light in the school building, for providing the school with furniture, for re-glazing the windows in the school, for feeding a boarding school for one month with a varied diet, for installing and maintaining the school water-supply, etc.

4. Draw graphs to show the town or presidency vital statistics, the exports and imports of India over a number of years, the prices of certain commodities, the industries of India, the Government budget for a number of years (with departmental comparisons), meteorological records, etc.

5. Draw frequency graphs of the class marks in various subjects in certain years, of the weight and height of the boys in the school at different times of the year, of the sizes of leaves from a tree or branch of a tree, of the scores of a well-known cricketer. Draw the 'variation array' for each case.

6. A project on stocks and shares, showing specimen stocks, newspaper reports of the stock's value, graphs of sales, variation in market price, etc. Trace the history of certain shares or debentures.

7. Make a set of geometrical models to illustrate lessons in mensuration. Make a set of diagrams for lessons in mensuration. Make a set of instruments for work in surveying, including measuring tape, compass, theodolite, pantograph, etc.

8. Make a set of units of length, area, volume, mass and time, according to English, French and Indian standards.

9. Make a collection of Scout problems (e.g. to find the width of a river), and give the geometrical proofs. Make a collection of difficult problems in mathematics and a book of solutions.

10. Determine the area of an irregular-shaped field by the method of triangulation. Make plans of the school building in plan and elevation.

Nature Study and Science

1. Apparatus to illustrate the development of seeds and the growth of plants. Simple crescographs.

2. Apparatus to test the effect of soil or of chemical food on the growth of plants.

3. Collections of objects for a nature study museum, such as twigs, leaves, flowers, fruit, seeds. Pictures and traces of these. To work out the life-history of a particular plant.

4. Survey of the flora of a district, with a descriptive record of each plant.

5. Making apparatus for experiments, e.g. glassware, barometers, inclined planes, pulley systems, mechanics' apparatus, optical benches, magnetic compass, dip circle, galvanometers, etc.

6. Wiring the science room or the whole school for bells or electric light, making of electric motors, dynamos, radio sets.

7. Organize a display of spectacular experiments in physics and chemistry. (Books are obtainable on the subject.) Organize a 'mystery show', mostly of chemical experiments. Organize a horticultural show and judge the best exhibits.

8. Write a pamphlet on modern scientific wonders—with pictures (each group may take a subject). Write a pamphlet on the history of one, e.g. the telescope, the electric motor, the motor car.

9. Write a pamphlet on the great scientists, with stories of their boyhood, student days, etc.

10. Arrange short lectures on such subjects as soap bubbles, tops, science in village life, science in the mill, science in agriculture, the scientists of India, etc. Arrange a lecture on chemical industries in India, chemical raw materials, etc.

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H. R. HAMLEY

HELPING THE SCIENCE MASTER

SCIENCE, as taught in Indian schools, is more often than not a dull and dreary business. The teacher is bound by the endless repetition of a very restricted syllabus, and his pupils look upon science as merely one more textbook subject which must be crammed up for examination purposes. The result is deplorable for all concerned and a wonderful opportunity is lost, because everyone will, I think, admit that science properly taught is a subject of the greatest educative value.

There are many reasons for this state of affairs in the teaching of a subject which *can* be made amazingly interesting to young boys, and which, when well taught, can arouse the keenest enthusiasm in the pupil. There is, first of all, the course of examinations and the teacher's desire that the examination result should be good. So much depends nowadays on examination results! A good examination result is an excellent thing, but it is not everything, and the methods used to get the result are the real test. In science teaching these methods are usually all wrong, and consist chiefly in drilling boys in the subject-matter of a syllabus in the hope that they will retain enough of it to answer the rather stereotyped questions of an examiner.

Then there is the question of practical science. Classes are usually large and difficult to manage in theoretical work, and this difficulty is accentuated when laboratory accommodation and equipment have to be provided. Besides, practical work in science is expensive and school authorities are never eager to spend money. Indeed, it is usually found that laboratory equipment is the last thing school authorities are willing to provide. Too many schools, which are supposed to teach science, have little or no laboratory accommodation, and the equipment too often consists of a few pieces of dilapidated apparatus for demonstration purposes. The result of this is that the boys are not allowed to do their work practically and the educative value of science teaching is lost; because, quite definitely, science is essentially a practical subject and its chief assets are its powers to arouse in the pupils interest and enthusiasm by actually doing and seeing for themselves. Even practical examinations are often a discouragement of practical work, since the questions asked are incapable of being answered at centres where apparatus is lacking and where, only too often, a good practical question has to be changed into a bad theoretical question.

Many young science teachers, fresh from academic studies and training colleges, enter upon their work full of enthusiasm and the right ideas. But their ardour soon dies when they are faced by so many practical difficulties. Old-fashioned headmasters, an unsympathetic and perhaps ill-qualified inspectorate, lack of equipment and an incessant demand for examination results and results only, all tend to discourage the keen young teacher, and he soon begins to drift back into the old bad ways. This is no imaginary picture, but hard fact. He is a very exceptional man indeed who can rise above such difficulties and still retain his enthusiasm.

Some of the troubles and difficulties which have to be faced in science teaching have been outlined above; it is by no means an exhaustive list. Unfortunately, the tendency to-day is not towards improvement. This backward, rather than forward, tendency is illustrated in the Punjab by a movement which is now afoot to abolish or make optional the practical science test in the University Matriculation examination. The Punjab University is more fortunate than other Indian universities in demanding that all boys who take science in the Matriculation shall not only take a practical course in science, but shall also face a test in practical work. This test has been held for many years, yet, curiously enough, to-day the practical side of science is so little valued that a few minor difficulties and abuses in the actual conduct of the examination are seized upon as an excuse to kill the practical side of science entirely. The protagonists of this movement are willing to admit that practical science is essential if science is to be adequately

taught in schools, yet they wish to abolish the examination, knowing well that the result will be the end of practical science in schools.

In the face of such difficulties, what is to be done? The key to the whole position is the science teacher. Poor laboratories, large classes, unsympathetic treatment, and so on, can gradually be overcome, and there is hope if only the teacher can be kept keen and enthusiastic. If the teacher loses his enthusiasm all chance of betterment goes, however great the improvement in other aspects of science teaching. The object of this article is to describe briefly the attempt that has been made in the Punjab to give practical help and support to the science teacher in his difficulties.

It is in the mofussil, much more than in the large towns, that the teacher is at a disadvantage. He is isolated and out of touch with his confrères; library facilities are either not in existence or limited to a small school library; he has no inducement, by contact and example, to keep in touch with new methods and developments; refresher courses are few and far between, and, even when such courses are held, obstacles are often put in the way of the mofussil teacher. Other disadvantages will readily suggest themselves to the reader. To combat some of these disadvantages the Punjab Association of Science Teachers was formed, with headquarters at the Central Training College, Lahore, four years ago, by Dr. R. H. Whitehouse. This Association invites all science teachers in the province and all those interested in science teaching to become members. The purpose of the Association is 'to further the true aims of the teaching of science in the Punjab, to maintain a high standard of instruction and examination, and to investigate, by experiment and experience, method in teaching science'. As far as possible, local centres with secretaries are formed, and these centres are encouraged to meet regularly to enable the members to swap ideas, discuss problems and, whenever possible, read papers on aspects of the work which they are actually doing from day to day. At headquarters monthly meetings are held for the same purpose. The proceedings of all these meetings, and the results of investigations, are published in the *Punjab Educational Journal* for the information of all those interested.

Such meetings and intercourse have had a good effect, but it was soon felt that something more was necessary, and the demand was for a library to supplement the very poor library facilities in the province. Accordingly, a science library was started at headquarters, and this library now has 700 books on its shelves. The books are circulated throughout the province, and any member of the Association is entitled to take out several books monthly or at shorter intervals. Not only can he thus secure books for himself, but he can also get books suitable for his boys and distribute them in his classes. The books in the library are

not of the textbook type, although textbooks are not barred, but are of general scientific interest and deal with all the sciences and the teaching of science. Those books which are meant for the pupils are written in simple non-technical language, and are on everyday science subjects, inventions, etc., etc. They vary in difficulty, from science story-books for small boys upwards, but none are abstruse. Books on higher aspects of science are, of course, meant for the science masters only, and are designed to broaden their outlook and paint in the background which is so often lacking. The annual subscription to the Association is only one rupee, and most of the library books have been bought out of subscriptions given by the students who yearly pass through the Central Training College.

This Association has done good work, but, even with the facilities offered by it, it is sometimes difficult to keep enthusiasm alive. Nevertheless, it is an attempt to do away with some of the disadvantages under which so many mofussil teachers labour, and many teachers in this province gratefully acknowledge this. One of the brightest sides of the work is the keenness displayed by the schoolboys in reading the library books sent out, and, if the Association achieved nothing else, this aspect of its work alone would be worth the effort. It must be clearly understood that the Association does not concern itself with such matters as the grievances of teachers in Government or private service.

Another line of work is now being developed by the Association. Members are being encouraged to take photographs of subjects connected with sanitation, social uplift, and so on. These photographs will be used for lantern slides, made at the Central Training College, Lahore, and, when several series have been prepared, will be sent out to members for lecture purposes. It is hoped thereby to reach the villager through the science master and the school, and get him interested in the practical application of scientific principles. Incidentally, such work will add to the status of the science master and provide a stimulus to his keeping up to date and enthusiastic.

The writer is unaware of any association similar to the Punjab Association of Science Teachers in other parts of India, and this article has been written not only to record what the Punjab Association is doing, but in the hope that work of a similar nature may find favour elsewhere. Any suggestions for further development and increased activity and usefulness would be very gratefully accepted. The rules of the Punjab Association and the list of books in the library will be sent on request to all those who are interested.

W. H. F. ARMSTRONG

CHILDREN'S BOOKS

My subject in this article is what De Quincey rather solemnly called 'Infant Literature'. It falls, very naturally, into two divisions. First comes the problem of the books which children should or should not read, and next how best they shall read the books provided for them. I shall confine myself here to the first part of this problem, since I have already dealt elsewhere with the second. Now, before any attempt can be made to bring the child in touch with the book at the time when he is ripe for it and likely to get most out of it, it is needful to know the child for what he is. We must observe his interests and outlook, so that we can come to know the kind of mental experience he demands from his reading. The literary taste of young children is crude and confused, but until we learn to know that taste for what it actually is, all our efforts to develop it, to strengthen what is good, and to discourage what is bad, will be equally crude and confusing. Unless teachers are at pains to discover the changing nature and needs of the child, his school reading may result in disappointment, disillusionment and even a settled distaste for books. One of the commonest mistakes in education is the attempt, constantly made by teachers, to present books to children for which they are not ready, or which they have already outgrown.

What, then, are the main currents that make up the growing child's stream of interest? Modern psychology enables us to answer this question with reasonable certainty, and although Nature constantly defeats the classifier, so that children who ought to be in one stage of reading development are, very annoyingly, in another, yet the classification which I am about to suggest is generally sound and true.

To the very young child the world appears, as William James puts it, a 'big, booming, buzzing confusion'. Out of this chaos he comes to distinguish and welcome the homely and familiar, and it delights him to have these elements repeatedly recalled to him in words. His first stories will deal with everyday surroundings—his pets, his home and playthings. Gradually he comes to enjoy the introduction of surprising or unusual detail into his stories of everyday things; he likes his facts diluted, as it were, with a dash of fancy. Thus the dog (in Hans Andersen's story of the Tinder Box) will have eyes as 'big as saucers', and the homely beanstalk grow stout enough to support a boy. But the old familiar features must still be present in sufficient strength to make these stories credible and friendly. It is true that the child at this stage (say, five to seven) begins to demand a re-grouping of details which are familiar to him into new patterns. But the pattern must not be too complicated or

fantastic, or he will fail to identify the familiar elements in it, and cease to attend. This first stage we may call 'Early Realism'. It lasts till about seven years.

At seven or thereabouts the child deliberately casts off from his early moorings and launches boldly into the uncharted sea of adventure and romance. He comes to delight in sheer wonders, longs to be thrilled either with terror or pity, and finds magic natural and excellent. He has, of course, little or no sense of character, so that his heroes and heroines are monstrous caricatures of real people. Provided he has marvels enough he can put up with anyone for a hero, because his interest centres in what happens to his hero, and only secondarily in the hero himself. Always he values the action above the actor. This is the stage of 'Early Romance', and it lasts till eleven or thereabouts.

In the next stage magic begins to pall and romance to fade into the common light of day. The child begins to seek his interest in the world of men, a world from which fairies, witches, ogres, magicians and the like have been shut out, not perhaps without some loss. The child's reading world is still far removed from the adult world of law and order and commonplace routine. It is a world (I speak mainly of boys' reading) of violence and bloodshed, in which crime is the staple industry and human society almost entirely composed of desperadoes and detectives. And yet the careful observer can discern the sense of probability beginning to stir, however faintly, in the child's mind. He does not ask that his stories shall be true to life as he knows it, for within his safe and limited horizon there is no scope for those hair-breadth adventures which give wings to his spirit. But his dying interest in fairy story and prose fantasy is proof enough that he has come back from Elfland, never to return save by a self-conscious and almost always disappointing effort. The 'never-never land', on the other side of beyond, has faded from the child's inner vision, and in its place appears the substantial backgrounds of the workaday world.

And yet, as has been noticed, not quite workaday, for the most improbable happenings are accepted by the young reader as the merest matter of fact. Quite incredible iniquities are matched by equally surprising coincidences. The hero stumbles quite by chance on the very cave in which the robbers have hidden their ill-gotten gains; or the brave girl who supports an ailing and widowed mother by selling matches in the street, discovers that the benevolent old gentleman who has paid her a shilling for a penny box is none other than her long-lost rich uncle from Australia, who has come to England for the expressed purpose of adopting the whole family. This is the stage (from eleven years upward) when the gang spirit develops both in boys and girls, and gangs figure largely in their favourite fiction. Indeed, a pretty

accurate classification of the types of stories favoured at this stage might be drawn up by noting the composition of the various gangs—whether of pirates, burglars, cowboys, smugglers, highwaymen, sailors, schoolboys, schoolgirls, or who not. This third stage we may call ‘Romantic Realism’. It lasts beyond the Primary school-leaving age; indeed, the vast majority of readers never outgrow it.

These three stages cover the child’s life as we know him in school. It is plain that the teacher’s task is twofold. We are not merely to select the right kind of book for the child at the right moment, but to see to it that the book is really good of its kind. When the child is ready for fairy stories, he must have the best fairy stories; when he is ripe for detective or sea stories, he must have the best of such stories. And, in order to select critically as well as timely, the teacher’s own acquaintance with children’s literature must be wide and his taste fine. But these matters are too big to be discussed within these present limits.

W. S. TOMKINSON

EDUCATIONAL PSYCHOLOGY AND THE PRACTICAL TEACHER

V. The Psychology of Arithmetic

WE have enunciated four Principles of Learning—Specific Practice, Adequate Practice, Prevention of Error, and Desire to Improve. In this article we shall apply these principles to the teaching of arithmetic.

Teaching aims at enabling the child to acquire by practice the correct response to certain situations likely to arise in the course of his future adult life. One of the situations which is likely, indeed certain, to arise in the life of every child is the arithmetical situation. For this reason arithmetic is very rightly made compulsory for all children.

But the schoolmaster has a habit of lumping together, under the title of a subject which is of wide utility, many sub-headings which are of no specific utility at all. We are required (according to the Principle of Specific Practice) not to exercise the child in ‘arithmetic’, but to exercise him in those arithmetic situations which are actually likely to arise in his future life.

Now if we study the sums in any textbook of arithmetic we find the writers of these books appear to manage their business concerns in the most original and unusual manner. (These examples are actually taken from textbooks of arithmetic.)

Here is a greengrocer who has a large stock of nuts: instead of taking a pint measure to discover the total amount, he counts the nuts one by one and then indulges in the following computation:

'There are 9 nuts in one pint. I have 6,789,582 nuts. How many pints of nuts have I?'

Again, a carpenter desires to discover the thickness of a board, and this is how he does it. He drives a five-inch nail through it and then proceeds as follows:

'A nail five inches long is driven through a board so that it projects 2.419 inches on one side and 1.706 on the other. How thick is the board?'

Here is a gentleman who knows the amount of his income from certain securities, but he has completely forgotten what the amount of capital invested is! Instead of looking up his passbook, or asking his banker, he proceeds to calculate as follows:

'In 3 years 3 months the interest has been Rs. 115 @ 6%; what was the original capital?'

Or, again, consider the main chapters of the arithmetic book: here are eight pages devoted to the papering of walls (are walls ever papered in India?), but nothing about rates of exchange; much about simple interest, but compound interest is not set for the Calcutta Matriculation! Nor do the writers of arithmetic books ever insure their lives. (One would have thought they had reason to!)

Again, one would expect, in this largely agricultural country, to find sums comparing the comparative costs and profits of various types of rice: or such a sum as this, 'Does the increased yield produced by a certain manure pay for the cost of the manure plus the interest on the money borrowed to buy it?' But no: the textbook writer does not grow rice; he is much more interested to discover when the minute-hand of a clock will next coincide with the hour-hand!

We may at this point make an application of the Principle of Desire to Improve. One of the reasons why children find arithmetic 'dull' and do not get on at it, is that they do not see any use in it and do not try to improve at it. And one of the reasons for this is that, as we have shown, there actually is no use in some of the processes taught. But in many, perhaps most, of the cases the reason is rather that the teacher and the textbook-writer do not bother to show the child the use. Take the classic example (found in all arithmetic books) of the gentleman who went to have a bath, turned on the tap, and pulled out the waste-plug, and then set himself to calculate how soon the bath would become full (or empty). Naturally the child says to himself, 'If you want to fill a bath, turn on the tap; if you want to empty it, pull out the plug. But no one but a madman (or a writer of arithmetic books) would do both! And here am I supposed to waste my time in calculating the consequences of the aberrations of the insane!'

If, instead of a bath, the teacher made it the reservoir of a water-

supply company, the child would be spared the needless irritation of working out an apparently perfectly useless sum.

At the introduction of any new arithmetical process the teacher should invariably indicate to the class the practical significance of that process—even if it takes a whole lesson on some matter of ‘general knowledge’ to do so. If he cannot show the significance, why is he teaching the process? Has it no significance?

The reason why this obviously necessary step is omitted is that ‘water-tight compartment’ system of teaching which was so rightly attacked by the advocates of ‘correlation of studies’. The teacher says, ‘I am here to teach arithmetic! I am not here to give the child information; I am not here to interest the child in all that wonderful world of finance and credit, of commerce and industry, of agriculture, engineering and science, which touch the child’s arithmetic course at every point. No; I am here to teach arithmetic—the manipulation of figures. That’s all!’

For the past two years Babu Jogendra Chandra Banerjee has been pursuing a most interesting investigation at the ‘Teachers’ College, Dacca. He has been endeavouring to discover, by means of a questionnaire addressed to representative members of various local trades and professions, what are the arithmetical processes which they use most in their actual everyday lives. In formulating a syllabus, the votes given by each profession will be multiplied by proportionate frequency of that profession in the census. In this way he will ultimately evolve a syllabus in arithmetic based objectively on the actual needs of the people of this country.

Suppose that we brought the various gentlemen questioned by Babu Jogendra Chandra Banerjee into the classroom, and made each of them teach the class the process of greatest significance in their own lives, and explain why it was significant—what a wonderfully interesting course it would be!

Arithmetic ought to be the most fascinating subject in the curriculum; actually, it is the dullest.

Equally important with the study of what are the important processes is the study of the *relative* importance of the various processes. We are here able to apply the Principle of Adequate Practice. Under present conditions the same amount of time (and of pages in the arithmetic textbook) is devoted to recurring decimals and to the Rule of Three. Now hardly a single week passes in which the average adult is not required to make some little calculation by ‘rule of three’; whereas how many of my readers can remember when they last made use of recurring decimals outside of the classroom? Children are taught too well many processes which do not matter, and the processes which do matter are not learnt well enough.

According to the Principle of Specific Practice, we are required to reproduce in the classroom precisely the situation to which the child will have to respond in real life. Now did anyone ever hear of a bank-clerk who was paid so much for every passbook totalled correctly (nothing being said about those which he added up wrong)? Or did anyone hear of an engineer being given half pay for calculations done correctly in respect of procedure, though the answer was proved to be wrong owing to mistakes in the actual computation? And yet that is how boys' arithmetic books are marked—one mark for every sum right, nothing being deducted for those wrong; and a half mark for 'right process but wrong answer'.

In life you are required to get *every* sum right. And not only that, you have got to *know* that it is right.

An ingenious American devised a system for improving 'speed and accuracy' in arithmetic. The child does sums (carefully designed so that each sum constitutes an equal unit of work) for five minutes. He then adds up the total number done right and notes the total on a graph. In this way he is able to see his daily improvement. But what does speed matter in real life if some of the answers are wrong? In the real world cashiers are appointed not for speed, but for accuracy.

In the arithmetic class no wrong sum should ever be shown up to the teacher. Every sum shown to the teacher as finished should be correct, and should be certified by the child as *known* to be correct.

How can this aim be achieved? Well, how does one do it oneself in actual practice? First, by making a rough estimate before working the sum so as to know what the approximate answer ought to be; and secondly, by applying, after the conclusion of the sum, various methods of checking. It is an extraordinary thing that in very few school textbooks of arithmetic is the subject of checking considered at all!

We hear much nowadays about 'vocational training'. Could anything be more 'vocational' than arithmetic? Could anything be less vocational than 'arithmetic as she is taught'?

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VI. The Psychology of History

We have enunciated certain Principles of Learning and have applied them to three important subjects in the curriculum, namely, English, Arithmetic and the Mother-tongue.

These subjects have certain things in common: it is comparatively easy to define the aim of the teacher in each of these subjects; it is easy to visualize the life-situations in which these subjects will be used, and the learning process consists very largely in acquiring certain well-defined 'skills', namely simple actions which are fixed by repetition, so that they can be produced at will in the future.

But when we deal with a subject such as history, the case is very different. What is the purpose of the teacher in teaching history? What is the life-situation in which the child will apply his history? What are the exact responses which we desire to practise now, so that the child may react in these ways in his future adult life?

It is very difficult to give an answer to these questions, and when we examine the books of method (those compendiums of pious hopes!) we do not get very much help. Stubbs (quoted by Welton) states the purpose of history in the following manner: 'To teach the knowledge of the adventures, the development, the changeful career, the varied growths, the ambitions, aspirations, and, if you like, the approximating destinies of mankind.' But what is meant by 'knowledge'? Is the child to be able to reproduce it orally, or in writing? Is he to know it like the multiplication tables, or is there to be some emotional attitude involved? Is he to possess the power of adding to his knowledge? A verbatim memory of Wells' *Short History of Mankind* would satisfy Stubbs. Yet one doubts whether that would satisfy others. And, anyhow, for what reason is the child to learn all this?

Stubbs goes on to say that the study of history will inculcate a Love of Truth, a Sense of Cause and Effect, Broadness of Vision, Sound Morals, Right Judgement—and quite a catalogue of virtues. So it may—or rather, so may *he*, the teacher who possesses these virtues; so he may in the teaching of any subject in the curriculum: and history certainly gives him as favourable an opportunity as most subjects.

These high-sounding statements are not a psychological analysis of the subject; they do not indicate what are the actual responses which have to be practised now so that they may be reproduced in the future, or how far some other elements than simple practice may enter into the process of learning.

Let us admit, in the first place, that there are certain historical facts which every adult is supposed to know. For example, every Indian boy is supposed to know that Akbar was the son of Humayun.

In other words, given the situation, 'Akbar, son of . . . ?' the boy will say (or write) 'Humayun'. To this simple teaching problem the principles of Prevention of Error, Specific Practice, Adequate Practice, Desire to Learn, obviously apply.

In general, however, the value of history teaching does not lie in the learning of facts. The purpose of the history-teacher is not so much to teach history, as to teach the child how to learn history. By practising the child in the studying of history now, he desires to ensure that in his future adult life the child may continue to study history. In order that the teacher may achieve this, he must cause the child to find pleasure in studying history—for the child will certainly not repeat in after-school life an experience which he has already found unpleasant or unsatisfying in school life. Secondly, the teacher must convey to the child the skill and technique of studying.

Certain psychological principles may be applied to the first problem, 'How to make the child enjoy?'

1. Action and self-expression are pleasurable.
2. Success is pleasurable.

These principles are sufficiently obvious. The child must be active, he must be finding things out for himself, attempting to realize his own schemes. And he must be successful in realizing his schemes.

In other words, the best way of making history pleasurable is to teach the child how to study it effectively for himself.

There are, of course, other factors in enjoyment. One of these is the teacher's own enjoyment of the subject; enthusiasm is very contagious. Another factor is the material conditions; it is difficult to enjoy a subject which is studied in a particularly damp and dismal room, and from a very dreary, date-ridden book.

In what does the technique of study consist? Essentially it consists in the art of reading. 'Reading' here is used in its wider sense: it means tearing the heart out of a book; finding out from the index just what part of it is wanted, and skimming that part so as to get just what you want out of it. The first step in teaching boys history is to teach them how to read effectively. After that the procedure is very similar to that of the Dalton Plan—that is, supervised independent study following an assignment. This does not involve any disorganization of the time-table, though it is desirable that one special room should be set aside for history—a specially nice room, with plenty of books and pictures in it, and furnished preferably with chairs and tables than with desks. In its history period the class comes to the history room, and each boy gets on with what he was doing. Sometimes, when some particularly attractive subject is reached, the teacher gives a set lesson.

Lastly, the aim of the teacher is to produce a certain attitude

towards history. Stubbs says that history teaches the child how to vote, and that it teaches him patriotism. We cannot agree with Stubbs. It is not the function of the history lesson to dabble in present-day politics whose problems will be settled and dead by the time the boy reaches the outer world. Nor would we wish to see the history classroom made the arena of any propaganda, patriotic or otherwise. Nurse Cavell was a better history-teacher than Stubbs—'Patriotism is not enough'.

Our little nations rise—and fall; kings pass and vanish in the mist. Our greatest battles are ant-fights played a moment in the grass. But the great age-long stream of life goes on. After all, is even Mankind itself the whole of history? The great mistake in teaching history is to teach too little of it. It is not 'a knowledge of the adventures of mankind' that we need, but a vista of the progress of Life. One cannot get historical perspective unless one looks at the whole of history, starting amid Azoic rocks, and reaching down to to-day's newspaper, an onward, perhaps upward, sweep. Viewed thus, how strangely little seems our vote—or even our patriotism.

The greatest gift which a history teacher can confer is the gift of historical perspective, the power to see events dispassionately in their relation to an age-long development, and to judge what in the present matters most to the ultimate future.

Politicians are always losing their tempers. Indeed, many of our present-day leaders seem to have reached that distinction mainly by power of invective, by mere looseness of the bowels of unkindness. The sister of history is biology. Temper, tears, patriotism and all kinds of emotion have no more place in the history classroom than they have in the biological laboratory.

The vision of the historian is the vision of God, a selfless contemplation of unfinished truth.

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MICHAEL WEST

DRAMATIZATION IN HISTORY

EVERY teacher of history wants to know how the monotony of words can be relieved by the use of some interesting devices in the lesson. With this object in view he tries to collect some pictures and models, and uses them in the narration. But words in themselves are not monotonous if there is some human feeling behind them. Let the necessary feeling be alive, both in the teacher and the taught, and the lesson is sure to be interesting.

The best way to stimulate children's feelings is to dramatize some select incidents in history. The scenes may be picked out from books like Festing's *Dramatized History of India and Historical Dramas*, or may be composed by the teacher, and even by the pupils of the higher classes themselves. It is not necessary that the pupils should learn by heart the various scenes to be acted. They may read their respective speeches, adding the necessary emphasis and intonation, before the class. For extraordinary occasions, perhaps, special preparation can hardly be avoided.

The following scene was composed for dramatization by Standard VI in the Elphinstone High School, Bombay. It is given here to show how such activities help boys to appreciate the real spirit of history, and how they also serve to encourage further reading.

Justice Coke and King James

SCENE 1

[*Sir Edward Coke's Court. A Case for Trial.*]

THE JUDGE (*to the Clerk of the Court*): Is everything ready? Are all present?

CLERK: Yes, my Lord. All the persons concerned in the case are present. May I send for the accused?

JUDGE: Yes, let us begin the trial now. (*Enter the accused, attended by the guards.*) Well, what is the prosecution case? The Counsel for Prosecution should now set forth the charges against the accused.

COUNSEL FOR PROSECUTION: My Lord, the accused stands charged with high treason. He has disobeyed His Majesty the King. He has set at naught an order of the King. It was possible for him to obey it—he was bound to obey it. Whoever disobeys the King commits a great crime, and, to make it an example for others, we charge this man with nothing less than high treason!

JUDGE (*to the accused*): What have you to say to this charge?

THE ACCUSED: I admit, my Lord, that I did not obey His Majesty's order. In it I was called on to lend half a million pounds to the King.

I did not possess that amount of money. Soon after another messenger came and told me to sell some of my valuables, or to borrow the necessary sum, and in that way to do the King's bidding. I did not think it proper to do so—it would have been a sin against the family trust. I admit, my Lord, that I had to disobey His Majesty's order; but, at the same time, I must say I am not guilty of high treason. I yield to none in my loyalty to His Majesty (*makes a low bow*). My counsel will explain the exact legal position.

JUDGE: Very well. (*To the Counsel for Prosecution*) Have you any evidence to produce?

COUNSEL FOR PROSECUTION: Here are the letters, my Lord, sent by the accused to the King. Therein he flatly refuses to carry out the King's wishes. I take my stand on these. I can produce some oral evidence also, but I think it is not necessary. (*Delivers the letters.*)

JUDGE: No, it is not necessary, as the accused admits the facts on which you frame your charge.

COUNSEL FOR DEFENCE: I request your Lordship to allow my client to look at the letters admitted as evidence.

JUDGE: By all means. Here they are for your inspection. Have you any evidence to produce in defence?

COUNSEL FOR DEFENCE: No, my Lord. We admit the facts of the case, but deny the charge. Ours is a purely legal defence.

JUDGE: Very well. Now the prosecution will take their argument in detail.

COUNSEL FOR PROSECUTION: I will begin, my Lord, by showing that the law of the land cannot be separated from the wishes of the sovereign. Very recently His Lordship the Bishop of London declared that the sovereign is appointed by God, and that he inherits all the powers of the divine ruler within the limits of his kingdom. God makes the laws of nature, and the whole world obeys them. None can go against them. The King, in his own sphere, makes laws for the guidance of his subjects, and it is their bounden duty to obey them. The Parliament can only draft a law and discuss it. It has to submit its drafts to the King for sanction. This very fact proves the sole privilege of the sovereign to make laws.

COUNSEL FOR DEFENCE: This is but a theory, and accepted only by some bishops and the King's favourites!

COUNSEL FOR PROSECUTION: Yes; but they are always a very few who have spiritual insight and divine inspiration. This is not a case which can be settled by a majority. The majority of people are almost always ignorant and in the wrong. The gifted few can alone guide, and guide rightly; and to follow them faithfully is the duty of the ignorant masses. Therein lies their real interest. It remains now

for me to show that a disobedience of the King's order amounts to high treason. Whoever goes against the King's wish, and, more than that, defies his written orders, opposes his own master. If a man thinks of going against his sovereign in one case, it may be said that he has fallen from the plane of faith, and he is sure to oppose His Majesty at any other time. Such a man is surely an enemy of the King and the country. And the law clearly says that an enemy of the King and the country is guilty of high treason, and must be forthwith punished as severely as possible. This is our case, my Lord, and, with His Majesty, I hold that, in the interests of the nation, the accused deserves an exemplary punishment. (*Sits down.*)

USHER (*with a low bow*): His Majesty's messenger is waiting outside with a letter for your Lordship.

JUDGE: Let him be taken to the clerk who usually receives all letters. (*Usher goes out and returns again.*)

USHER: My Lord, the messenger says the letter is intended for your Lordship personally.

JUDGE: It is all the same. Let the clerk take it. If it is very urgent, he will bring it to me. I don't receive any personal letters now. (*The usher goes out.*) Let us hear your defence as we have nearly an hour before we adjourn.

A CLERK: Here is a very urgent letter from His Majesty to your Lordship. (*Delivers it and goes out.*)

JUDGE (*to the Counsel for Defence*): Wait a minute, please. (*Reads the letter and puts it into his pocket.*) Yes, now you can begin.

COUNSEL FOR DEFENCE: The theory of the Divine Right of Kings, my Lord, is all very well as a theory. But in this workaday world it can have no place. First of all, he who claims the right must be divine himself, his mental qualities suggesting his superiority. It is sheer hypocrisy on the part of a man who is altogether worldly in his desires and cravings, in his actions and relations, to profess such godly merits. He who is really divine can inspire others to respect him, and does not find it necessary to advertise his own goodness or power, or to strut about with pomp and show to overawe the people—

COUNSEL FOR PROSECUTION: I object to such language with reference to His Majesty. Your Lordship will see the disrespectful attitude of the learned Defence Counsel towards His Majesty.

JUDGE: I don't think it is so objectionable. His remarks are all general. He has not mentioned His Majesty's name. Of course, if the cap fits anyone he may wear it.

COUNSEL FOR DEFENCE: And certainly the historical facts tell us that His Majesty did not come to the throne of England at any divine call! True, that he was the nearest relation of the late lamented

Queen, but it required an invitation by the people's House for the King to come here. The theory of Divine Right has not been approved by Parliament. It has not the force of the law of the land. It cannot be binding on the people. And hence disobedience of an illegal order is no crime, much less high treason. This is the point in law in the case. Looking from the point of view of equity, it is clear that His Majesty was not justified in asking for a sum of money so big that my client did not possess it. It is scarcely becoming in a ruler of a nation to order a helpless subject to sell or mortgage his property and to lend him the proceeds! It was, in truth, a heartless order. The comfort and convenience of his subjects should be the first care of a sovereign. But here it is all otherwise. I, therefore, submit, my Lord, that my client is quite innocent, and that the charge laid on him by the learned Prosecutor is groundless. (*Sits down.*)

JUDGE: I have heard both sides. You will hear my decision in the afternoon. (*The Court is adjourned. The Judge comes out and talks to himself*): Here is the King's letter to me. He says, 'Decide the case in my favour. Punish the man very severely. It should be an example to all others—at least five years in the Tower and confiscation of his property. People must know what a King's word means. . . .' Very strange! A poor man to be punished for his poverty! 'People must know what a King's word means'! But it is not the law of the land. It should mean only what it is worth. I am bound only by the laws of the country. And this interference with justice! I ought not to have read the letter during the session time. I am thinking in my subconscious mind of the honours and advancement gained by a colleague of mine who acted according to the King's instructions. Oh, this is all sinful! My conscience seems to be tainted! Away with those honours and gains! It matters not if I lose my titles or my position. I must follow my own conscience. No interference with justice! The laws of the land will be my guide, not the King's word!

(*Exit Judge.*)

SCENE II

[*The Same Court*]

THE JUDGE: I will deliver my judgment in the case. The accused is *not* guilty, and is, therefore, acquitted. He has not committed any crime against the law of the land. The King's word is not the law, and to disobey it is no treason. I rule, therefore, that the accused be released at once.

(*The Court is Dismissed.*)

SCENE III

[*King's Chamber, King James I with two Courtiers*]

THE KING (*to 1st Courtier*): We are very glad that you decided that case according to our instructions. That is real justice. As the ruler of the land we are the fountain of all justice, the source of all law, the custodian of all conscience, and our judges have only to act up to our wishes.

2ND COURTIER: And his ruling establishes the general principle that Your Majesty can tax any imports or exports.

THE KING: Don't say 'establishes'. Our right to tax has already been established; and our friend here has just made it known to the public.

2ND COURTIER: Yes, I beg Your Majesty's pardon. Indeed, all kingly powers flow to Your Majesty from God.

THE KING: And we use them for the welfare of our subjects. Do not forget that.

BOTH COURTIERS: Oh, yes, Your Majesty. That is true. The people must learn obedience first and then happiness is theirs.

THE KING: We are extremely thankful to our friend here.

1ST COURTIER: I have but done my duty; and Your Majesty need not thank me for that.

THE KING: But such instances of dutifulness and obedience are more appreciated in contrast with others of the opposite kind.

1ST COURTIER: Yes, Your Majesty. Sir Edward, I am ashamed to say, made a blunder in setting aside Your Majesty's word.

THE KING: I have sent for him and let us see what he has to say to that. I expect him here this very hour.

2ND COURTIER: Such men are a great hindrance to Your Majesty.

THE KING: I can at least remove them, clear my way, and make it easy for others to follow.

BOTH COURTIERS: Oh, yes. None can oppose Your Majesty in doing so.

(*Enter a servant with a card. He gives it with a low bow to the King.*)

THE KING: Here comes Sir Edward Coke. Send him in.

BOTH COURTIERS: He is just in time.

(*Enter Sir Edward Coke. He bows.*)

THE KING: Good morning! Come, take this seat, my friend.

COKE: Thank you, Your Majesty. (*Sits down.*)

THE KING: We have just been saying how things are best set off by means of contrast.

COKE: Yes, Your Majesty, and one may appreciate this or that according to one's own angle of vision:

THE KING : The moon looks more beautiful because of the spot on it; but none can say that the spot looks more beautiful because of the moon.

BOTH COURTIER : Oh, no, Your Majesty. None can say that.

THE KING : Sir Edward, who am I ?

COKE : Your Majesty is the greatest servant of this nation. There is no doubt about it.

BOTH COURTIER : Servant ! Oh !

THE KING : The greatest master, you mean ?

COKE : No, Your Majesty, you are the greatest servant.

BOTH COURTIER : How can you dare say that !

THE KING : Who are you then ?

COKE : I, too, am a servant of the nation, but of a lower order than Your Majesty.

THE KING : It seems that you did not receive our letter last week.

COKE : Yes, Your Majesty, I did receive it.

THE KING : Perhaps after the decision in that case was given ?

COKE : No, sire, I received it and read it before that.

THE KING : Was it very difficult to understand ?

COKE : No, Your Majesty. But it was impossible to carry out the instructions in it.

BOTH COURTIER : Impossible ! The King's word impossible !

COKE : Yes, my friends. I found it impossible to carry out.

THE KING : What is your guide in deciding the cases that come before you for trial ?

COKE : The law of the land, indeed, Sire.

BOTH COURTIER : And is not the King's *divine* word the law of the land ?

COKE : No, certainly not !

BOTH COURTIER : The King's word not the law ! Very strange ! What is the real law then ?

COKE : That which the statute-book contains. All that has been passed by Parliament and sanctioned by His Majesty. That is the real law.

THE KING : Our word, then, has some force of law. And, again, you admit that you are a subordinate servant to us, and as such bound to obey us ?

COKE : In the first instance I am a servant of the nation, and then, secondly, subordinate to Your Majesty. With all due respect to Your Majesty, I have to say this and to act accordingly.

THE KING : Very well, then, let the nation pay you and hear your learned decisions ! We shall have none of them, nor will our treasury pay you. You are dismissed from the office.

BOTH COURTIERS : Just retribution !

COKE : I accept Your Majesty's order. It will give some relief to my mind. Farewell! (*Makes a low bow and goes away.*)

SCENE IV

[*Coke outside the Palace, alone*]

COKE : Thus, then, I am free from the bonds of service. Is it a good thing or a bad ? No more can I wear those rich robes and occupy the seat on high ! No more will people bow to me or wait anxiously for my judgment. No more will the guards of honour greet my arrival nor clear the way for me. No more shall I be addressed as 'Your Lordship'. All that honour is now gone, and the pay along with it. I cannot now retain my old standard of living. I must be satisfied in future with my original poor income. I may try to find out some other private work and earn money to meet my needs. But, with all that, my household will, no doubt, feel the change. It cannot be helped ! What I have lost at the King's court I may gain in the people's esteem. They will probably say : 'Here is a man who cares more for justice than for money. He has set aside the King's instructions but has stood by the law of the land. He has lost his post of course, but deserves all praise.' Yes, I may become a little more popular—but that was not why I withstood the King's will. I did it for the sake of my conscience. My duty as an impartial judge would not allow any interference. I never allowed my judgment to be tinged with private considerations. Even my nearest relations would not dare to approach me in any underhand way. I am glad that I had the strength to keep aloof from royal interference with justice. My country and my conscience—I will stand by these at any cost. For so long I have worn a borrowed cloak. It was not my own. My rights and duties, gains and losses depended on another's sanction. Now I stand by myself. I cannot use borrowed authority in future. I must depend on my own merits. What a change ! How often is man carried away by 'the peacock's feathers' or 'the lion's skin' which he puts on ! How often does he forget to use and cultivate his own intrinsic qualities ! Let man be judged by his own merits and demerits. Ah ! yes, a new path ! a new lesson ! a new light !

(*Exit Coke.*)

NATURE STUDY IN INDIA. III

The Classification of Birds

No intelligent student can come to know many birds without recognizing special likenesses among them. The common house crow and the jungle crow; the common myna and the bank myna; the different species of vulture; the demoiselle crane and the common crane—all these, and many more, will bring home to pupils and teacher alike the fact that birds, like humans, have their clans and families.

In discussing how to learn these groupings, I hope I shall at the same time suggest how to teach them.

Assuming that you have learnt to recognize a good proportion of *The Birds of an Indian Village*—and I can assure you that this is easy, if you give yourself a year or even less, with energetic use of the little book—I take it that ‘you’, whether teacher or elder scholar, have begun to group certain birds together as resembling each other, as, indeed, Mr. Dewar suggests by the titles of the later chapters.

What you need now, then, is to understand *bases of classification*. The old plan, which was to go by *beaks* and *feet*, is an easy way, since these are readily distinguished in the living bird; and an interesting one, since they have a real bearing on *how* and *where* the creatures live.

Thus as soon as you give the cue, ‘Tell me any birds with long legs and beaks’, the *gai bagla* and the common *bagla* will come to your pupils’ minds, and the cranes too (*kullum*), if you live anywhere near a river. And these long ‘stilt’ legs seem fitting for creatures that stand about at the edge of the water, getting their food from the damp mud or grass.

Again, if you ask for birds with very strong beaks and claws, you will certainly have kites, vultures and eagles given, though you may have to cast out for further consideration a good many others that will be volunteered (crows, for example).

Birds with strong walking legs and straight claws, and beaks strong enough for hard grain, will need helping out with ‘heavy bodies, short wings, and the cock much gayer than the hen’ to yield *murghi*, *moa* and, perhaps, partridge (*titar*) and quail (*batër*).

In this way, after a first lesson on classification, you will be ready to assign to their right order (‘family’ in the large sense = clan or *jat*) the birds:

BLACKBOARD

Order

Cattle Egret (<i>Gai bagla</i>)	}	Hérons
Pond Heron (<i>Bagla</i> , Paddy Bird)		
Common Heron		

Peafowl (<i>Mēa</i>)	}	Game birds (or Scratching birds)
Jungle fowl (<i>Jungli murgh</i>)		
Quail (<i>Batēr</i>)		
Partridge (<i>Titar</i>)		
Domestic fowl (<i>Murgh</i>)		
Black vulture (<i>Raj-gidh</i>)	}	Birds of Prey (diurnal)
White-backed vulture (<i>Gidh</i>)		
White vulture (<i>Safed gidh</i>)		
Brahminy kite (<i>Dhobia chil</i>)		
Common pariah kite (<i>Chil</i>)		
Hawk (<i>Shukra</i>)		

The difficulties which have arisen meanwhile may all be made use of as preparation for future lessons.

For example, while the cranes are not now allowed in the same order as the herons, their mention will allow you to set your pupils collecting descriptions of all birds (*a*) with long legs ; *or* (*b*) seen in or near water ; the need to explain that the kite and vulture family does not include owls, although these resemble them in preying on smaller birds and on little mammals, will leave your class ready to make a second group, *nocturnal* (= night) birds of prey, as against the *diurnal* (= day) hunters, the hawks, etc.

Next lesson, your class may be ready not only to give you descriptions of species of owl (cf. chapters 33 and 34 of Mr. Dewar's book), but to make a thorough attack on the problem of the different kinds of birds found in or near water. These will range from the web-footed birds (which fall into two chief orders, the Gull-and-Tern family, and the Duck-and-Goose family) to those which may be members of the great group of *Passeres* (singing birds) which shows as great variety in choice of *habitat* (= where 'it lives') as in size and plumage. The blackboard (which I take as a summary of your pupils' notes) for a second day's work at classification might be something like this :

BLACKBOARD

	<i>Order</i>
Barn Owl	} Owls (Nocturnal Birds of Prey)
Long-eared Owl	
Spotted Owlet (<i>Khusattia</i>)	
Swan	} <i>Anseres</i> , i.e., Goose- like birds.
Goose	
Duck	
Gull	} <i>Gavnae</i> , i.e., Gull-like birds
Tern	
Skimmer	
Water Rail	} <i>Grallae</i> (Birds on Stilts)
Moorhen	
Coot	
Cranes (<i>Kullum</i>)	
Demoiselle Cranes (<i>Kullum</i>)	

For working out the great group *Passeres*, I am afraid I must refer you either to *Bird-study in India* or to one of the larger books referred to in it.

I must end this series of hints on bird study by pointing out that a *species* of bird is the scientific name for some *one* kind of bird, such as hoopoe or green paroquet (common *tota*), while *genus* may include several species which are more or less alike, as the genus paroquet includes the *lalsira tota* (blossom-headed paroquet) as well as the commoner *tota*.

M. R. N. HOLMER

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BOOK REVIEWS

Food. A Primer for use in schools, colleges, etc., in India. By ROBERT McCARRISON, Director of Nutritional Research, Coonoor, S.I. Macmillan and Co. Pp. 124. Price, Re. 1.

The author of this book has a world-wide reputation for his researches on food and nutrition. Sir W. Arbuthnot Lane, in an article on 'Civilized Man's Diet', writes: 'Let us turn to the experience of Colonel McCarrison, who is still in the medical service of the Government of India, studying diet and its influence upon health and upon the freedom from disease. Perhaps no other observer has done work approaching in excellence that which he has carried on in this branch of dietetics.' Colonel McCarrison has studied the problem of diet not only by the conventional method of experiment on animals and human beings, but also by acute observation of the food content and physique of whole tribes of people in India, particularly in the Himalayas. This small, readable primer on Food by such an authority is to be welcomed. The book is simply written and in an interesting style on subjects ranging from air, sunlight and water to the five vitamins. Six chapters are devoted to an analysis of common foods used in India from the point of view of food value and vitamin content. A summary of the food needs of the Indian child is given in the following terms:

'The right kind of food for Indian children, and indeed, for children in any country, is one made up of the following simple things: (1) any whole cereal grain or mixture of cereal grains; (2) plenty of milk and the products of milk—curds, buttermilk, butter, ghee; (3) sprouted pulses; (4) eggs or liver, or meat or fish, if religion permits their use; (5) tuber and root vegetables; (6) abundance of green leafy vegetable; and (7) fruit.'

It would be a national gain if every child could master the contents of this little book before he leaves school. The ignorance on the food question in some quarters is amazing.

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Indian Pictorial Education. Times of India Press, Bombay. Monthly. Pp. 20 and Map. Price, Rs. 13-8 per annum.

By arrangement with Evans Brothers, London, publishers of the well-known and popular *Pictorial Education*, the Times of India Press has issued *Indian Pictorial Education*, which bids fair to rival its parent, not only in quality but also in popularity. Already it has been received with eagerness in many progressive schools. In these days, when pictures to illustrate lessons in history and geography are in great demand, the publication of this pictorial magazine is to be

welcomed. Apart from its value to the teacher, it is believed that *Indian Pictorial Education* will prove interesting to the general public. From the point of view of production the pictures do credit to the Times of India Press; they are carefully selected, excellently printed, and are large enough to be seen across an ordinary classroom. The mountains of India, Burma and Ceylon have been taken as the subject of the first issue; future issues will deal with other subjects, such as temples and mosques, industries, historical pictures, etc. We congratulate the Times of India on this production and commend it to teachers.

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English Spelling, Its Rules and Reasons. By SIR W. A. CRAIGIE.
George Harrap and Co. Pp. 115. Price, 2s. 6d.

The aim of this book may be best stated in the author's words: 'The main object of this book is to give a clear and concise account of the several elements which have combined to produce the great variety so noticeable in the spelling of English. The results of this combination are frequently so contradictory, and so incapable of being reduced to any one rule, that they have naturally created an impression that English spelling is a hopeless chaos.' The same remarks would apply equally well to English pronunciation. In his widely used book, *The Pronunciation of English*, Sir William Craigie shows that English pronunciation is not as hopeless as is generally supposed, and that there *are* rules to cover the large majority of cases. In this supplement to his book on pronunciation, he shows that most of the peculiarities of English spelling have an historical basis. The book is not one that the average person would be inclined to read through, but it should be a very valuable book of reference for the Indian teacher. The argument is systematized, so that it is fairly easy to find one's way in the book. The chapters read 'Words of One Syllable', 'Words of Two or More Syllables', 'Irregular and Ambiguous Forms', 'Silent Letters', 'Consonants', 'Vowels', 'Unadapted Forms'. The two main divisions are 'The Native and Allied Normal Type', and 'The Classical and Romantic Types'. This book should be in all teachers' libraries.

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Tyrannies of the School. By C. W. BAILEY. Blackie & Co. Pp. 128.
Price, 2s. 6d.

Teachers who have read, and enjoyed, Mr. C. W. Bailey's *Letters to a Young Headmaster* will not miss this new series of talks to teachers. The *Tyrannies of the School* were first published as articles in *The Schoolmaster* and *The Journal of Education* and were much discussed at the time of their appearance. At first sight the title suggests

conflict between the teacher and the pupil or an appeal for the freedom of the pupil, but it is really an appeal for the freedom of the teacher against 'The Orthodox', 'Time-tables', 'Examinations', 'Formal Discipline', 'Cast-Iron Administration', 'Clichés', 'Parents', 'School Apparatus and Equipment'. The author belongs to that band of 'inspiring rebels' like Homer Lane and MacMunn, who support 'active and constructive educational freedom' for teacher and pupil. He is witheringly scornful of the useless and unnecessary trappings that have become associated with modern schools, of the endless records, documents and regulations, of the obsession for examination, of the over-solicitous parent, of the modern craze for elaborate apparatus and equipment. We are told that documents 'read like some timid tribunal throned and delivering doom'; examinations produce people 'who refuse to work without numerical bribes' and may be regarded as 'mercenary competitions'; 'red tape goes farther than tying up individual teachers. It strangles schools as well.' His concluding remarks could almost be heard in India: 'If we can escape such tyrannies as rigid classification and a mathematical precision of administration, and allow a fair opportunity to all schools, there is still the possibility that, under energetic leadership, the work done by an increasing number of schools will improve in its standard, so that the arrival of secondary education for all need not be indefinitely postponed'. Although the references are mostly to English schools, the Indian teacher will gain much by reading this book.

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The Teaching of English in Primary Schools. By H. A. TREBLE.
Oxford University Press. Pp. 119. Price, 2s. 6d.

This book, embodying the substance of three lectures delivered before the National Union of Teachers, England, is a welcome sequel to and commentary on Treble and Vallins' series of books on grammar and composition, entitled *The Gateway to English*. It is a delight to read, for it is full of sound commonsense and original ideas and abounds in good humour. Most books on the teaching of English have a lot to say on what to teach. This book tells us, in addition, what children like to be taught, and how to teach them the things they like. The author constantly reminds us that the verb to teach has a double accusative and that the personal one is the all important one: 'the child loves topical subjects', 'the narrative is always attractive to the child', 'a child clutches naturally at anything which makes a poem or a reference in a poem natural'.

The book is divided into four chapters: 'The Writing of English', 'Formal English', 'The Reading Lesson', and 'Poetry and Drama in

the Classroom'. Each of these subjects is dealt with in a thoroughly practical manner. The reader is persuaded that rough-work books are very useful; that English spelling is teachable; that the learning of grammar is essential; that paraphrase has a place in English teaching; that over-emphasis on oral reading is humbug; that there is a real danger in low and useless reading matter; that prose as well as poetry has rhythm; that we have never made half enough of the dramatic element in teaching English. These and many other practical topics are dealt with in a delightful way. But the book is not by any means merely a practical guide to the teacher in the classroom; it is more than that. 'I have pleaded in these lectures, with all humility, for a greatness in ourselves to lift up and sanctify what would tend to littleness; to seek, in the leisure that our work allows us, the best we can of sport, of travel, of literature; to look beyond the classroom, and beyond the child, to the unseen and the unknown.'

We can heartily recommend this book to teachers in general, and to teachers of English in particular.

BOOKS RECEIVED

Lectures and Addresses by Rabindranath Tagore. Selected by A. X. SOARES. Macmillan & Co., Ltd. Price, 3s.

Abhinava Pathavali. Macmillan & Co., Ltd. Price, As. 12.

A New Primer of Psychology. By MAHOJOT SEHAI, M.A. Macmillan & Co., Ltd. Price, 3s. 6d.

W. and A. K. Johnston's Enlarged Atlas for Indian Schools with Index. Macmillan & Co., Ltd. Price, Re. 1-12.

Algebra for Colleges. By ATHAVALE and SHAH. Revised and rewritten by PRINCIPAL SHAH. Macmillan & Co, Ltd. Price, Rs. 3-8.

Laghuramacharitam, Bhasakathasarah, Parts I and II, Vol. I; and *Bhasakathasarah,* Part III, Vol. II. By Y. MAHALINGA SHASTRI, B.A., B.L.

Senior Course in English Composition. By A. X. SOARES, M.A., and M. N. MAJUMDAR, B.A. Second Edition. Oxford University Press. Price, Re. 1-4.

TEACHING

A QUARTERLY TECHNICAL JOURNAL FOR TEACHERS

Editor : - - - H. R. HAMLEY

VOL. I

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No. 4

EDITORIAL

THIS is the fourth and last number of the first volume of TEACHING, and the editor is glad to use the occasion, first, to express his grateful feelings towards all those, whether as contributors of articles or reviews (many of them writing for no fee and some of them anonymously), or as subscribers, who have helped him so far in his labours.

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Next, he wishes to say how badly he wants more, and still more, of both contributors and subscribers. TEACHING has now well over a thousand annual subscribers. This may be counted a fair beginning, but this figure must be at least doubled if the journal is to fulfil its mission, and to become and continue to be self-supporting. We are making each volume self-contained; hence all the first annual subscriptions will lapse after the issue of this number. So we are sending along with it *two* subscription forms for the next volume. Please renew your own subscription at once—for the editor's peace of mind!—and then, and we are sure this is possible, get an interested friend to fill and send in the other. The subscription is so low that we unblushingly expect every teacher, as well as every headmaster, to be tempted to subscribe to the journal himself.

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Then about contributions. We are not receiving nearly as many articles from our friends as we had hoped. Any fruitful school or college experiment is worth recording for the benefit of all; almost every enterprising teacher has something individual, borne of his experience, worth saying. We have been surprised ourselves at the wide scope possible for such a magazine as this. There are a host of aspects of

school life in India, as well as certain subjects of the ordinary school curriculum, about which up till now we have received no contributions at all. And we shall be grateful also for notices of new and useful books, and for letters of suggestion or of criticism.

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We regret that in a few cases the March number was posted late in the month. The publishers have now revised their system of dispatch, and we trust complaints of late or non-receipt of copies will in future be reduced to the minimum.

SCHOOL ORGANIZATION

(Adventuring Towards Swaraj)

It proclaims a most commendable breadth of view when an Inspecting Officer can say to the newly-appointed Head of a school, 'Develop on original lines! Whatever you do, don't let your school be an exact replica of any other in this city.' It postulates surprising freedom from the red-tape bondage of her official *milieu* when her annual inspection-visits consistently prove the genuineness of this advice.

Such has been the fortunate experience of the school chiefly concerned in this article. Through years of struggle up to the standard required for affiliation to Calcutta University, and then, more specially, in the later and more fruitful years when, having obtained this imprimatur, we have been able to broaden our courses of study and experiment withal, and eliminate the deadening grind for matriculation, or at least postpone it until a very little while before this one public examination for which the school enters, it has been cheering to have this early counsel as one's watchword.

But for a school to develop on original lines is not something for which any Head can legislate. She may dream her dream, but it takes years of thinking aloud and thinking together with a staff, modifying one's own ideals, not necessarily lowering them but seeing them in terms of this country's heritage and present needs—until the staff 'catch' the vision, and they can set forth together to make it come true.

Whence the staff? The original and often disapproving members with which one came to work, and in the fullness of one's ignorance probably often scandalized by one's methods, pass on to other spheres. In the course of time, and in each successive year, one sees

senior girls emerging, to train and then return, keen to share their Training College enthusiasms and to find ways of expressing them in the spirit of their old school.

It may not always be desirable or practicable to have a staff consisting in the main of former pupils, but there is indeed much to be said in favour of it. It presupposes a good deal of real affection for the old school for a teacher to come to it at a smaller salary than many another post offers: it presupposes a real faith in its tradition for her not to seek rather the allurements of fresh fields and pastures new! and it presupposes a confidence that the good comradeship and scope allowed one will make up for the attraction of a position which in theory might promise more independence.

So many difficulties to which schools are prone seldom or never occur if the staff are where they are because they wish to be there, and not merely because they have drifted there. They have a concern for the good name of the school. It is their business and not merely the duty of the Head to see that the school is not dishonoured by their failure. They belong to the school, and, as 'Old Girls', must not let it down. On the other hand, their real partnership must be recognized by their being given real responsibility and confidently left with it. One outworking of this is that if a teacher is compelled to be absent, neither she nor her colleagues will ever dream of allowing arrangements for her classes to be left to the Head. Careful forethought on her part, and willing co-operation on theirs, will obviate such a contingency, and incidentally be an exceedingly good example in appreciation of duty, for the girls, perhaps unconsciously but nevertheless truly, to copy.

Again, if anything occurs demanding enquiry and discipline, which the senior girls, unaided, have not succeeded in dealing with, the staff will feel responsible for doing their utmost to clear the matter up before, or even without, reporting it, thus honouring the trust placed in them as custodians of the school's welfare.

Further, this high regard for their own duty and the school's high standards leaves the Head free for wider interests in the children's homes and in the educational world, whence come radiating back influences of goodwill and understanding on the part of parents, and inspiration from the experiences and experiments in education in other institutions.

'How is your sister settling down in school?' one asked a senior girl, who was sad that, her final examinations over, she herself must now leave school. 'Oh! she loves it. She says it's so beautiful to have no rules!' This gave one rather a shock, for, though there were no printed rules anywhere visible and though in the prospectus what are usually called such were worded rather as appeals to parents for the

well-being of the school community, one knew there were certain very definite regulations, which 'twere well to observe.

'It's just like home,' was the further verdict of the new-comer. And if in a boarding school of nearly a hundred girls a home-like atmosphere can be achieved, it speaks volumes for the attitude of the resident staff, to whom it may be in some cases the only real home they themselves have, while to others it is only a term-time residence, but still home.

And if a home is a place to dwell in, it is also a place to share with others. And so it came to pass that when, at the request of the Controller of Examinations, permission was given to hold the Matriculation examination this year in the school-hall, and we undertook to supervise the proceedings, we were really making it possible for the school to embark upon one of its most pleasurable adventures in hospitality, indeed in international friendliness, since the candidates were of many and diverse nationalities! With a distinct air of sharing in this enterprise, the kindergarten stacked their wee chairs and tables under the stairs and betook themselves for ten days to mats under shady trees on the lawn, or, when the heat drove them to more shelter, to verandahs or other places where the merry sound of their activity should not penetrate the hall where such serious work was in progress. Boarders and day-girls alike left their dining- and tiffin-rooms at the disposal of the candidates, and the First Class girls constituted themselves, with their own seniors who were appearing for Matriculation, as hostesses-in-chief, met the visitors, showed them round, and did all they could for their comfort. It was a fairly easy matter to be friendly to Bengalis, who speak one's own language, not quite so simple where Tamils, Marathas and Malayalis were concerned, and more difficult still where Armenians and other foreigners had to be negotiated with! Altogether the school made the co-operation the University Senate had asked for more complete than anything we had ever contemplated, and staff and girls vied with one another in making a success of it.

Hospitality, of a vicarious nature, is at times called for. When Sir John Simon came to Calcutta on a pre-Commission visit, and a hartal was, in consequence, declared, the school had no official holiday. We knew some parents might consider the streets unsafe for their daughters that day and we respected their fears, whatever their views of the Commission might be. But we sent out our very new motor 'bus on its usual rounds. Some small boys threw stones at it, and threatened the lordly Sikh driver with more damage should he dare to reappear. The school-girls, many of them children of most rabid Swarajists, were most indignant at the spoiling of their beautiful 'bus, and were quite sure that behaviour such as that had nothing to commend itself to true advocates

of Swaraj. At home they had heard much against Sir John and his proposed work in the land. In the course of the day we talked a little about the man, his family, and his connexion with the school through the fact of his being a cousin of an honoured senior missionary many of the girls had known; we spoke of some of his views concerning India and his desire for her highest well-being. Suddenly from one of the most ardent young nationalists, 'Well, if that's why he has come to India, mustn't he be thinking us inhospitable to-day? Calcutta should not, after all, have received him with black flags. Could we write and tell him we regret it, and could we invite him to come to our school?' A letter was eventually despatched, inviting him to visit us, not as the Chairman of the Statutory Commission, but as the relative of an old friend. What with holidays, and the Commission sittings synchronizing with school-hours, Sir John decided his wife could pay us a more useful visit than he. Lady Simon, herself a trained nurse, talked to the upper-school girls about nursing as a profession, and her wit and good sense so captivated them that they saw this calling in a new light, and as one worthy of the attention of those who, like themselves, were about to choose what specific training-course to do next. A new outlook upon social service has come to the school as a consequence, and hospitality has been given to the idea of nursing as a suitable profession for the daughters of *bhadra-log*.

One of the aims of the school has ever been to value and encourage the study of Bengali, language and literature. In the early days, even when the Swadeshi movement was at its height, children at High school were expected by their parents to acquire a knowledge of English. This was essential; the vernacular, which could be picked up at home, why waste time upon?

It took years before any great ambition for high proficiency in written Bengali came into being. Now people are at last alive to the worth of their own language and literature, and many are keen that their children should cultivate a good vernacular style. And if, in the spirit of nationalism, they believe this is their own unaided judgment, what matters it, so long as Bengali has come into its own.

In art also, while striving to develop the children's own individuality, we have been mindful of their Indian heritage. This with girls finds ample scope in designing for embroidery, pottery decoration, mural painting, illuminated manuscript-work, and in many another direction. The country through its Hindu, Buddhist and Mughal traditions is rich in beautiful forms in architecture and pictorial art, and a study of these is a liberal education. Moreover, Bengal has all the inspiration of a renaissance in art with which to fire school-girls with new zeal for the expression of beauty in their school and home. Their country's best

can be shared with westerners on the staff, and also through exchanges with children in other lands—portfolios of pictures of famous painters, collected by the girls, or illustrative work of their own. Thus goes on the work of interpretation between the children of different countries, and a very real interpretation it is.

One welcomes with the utmost satisfaction the establishing of the Scientific and Educational Film Society, in Calcutta, as a very fascinating means of imparting instruction and carrying on this work of interpretation. We see how other people live and toil and play and learn, and there's a new kinship between them and us. And the very shows, with their fortnightly programmes, contrive a focus of friendliness within the school, since zenana-women, mothers of the school-girls, often themselves 'Old Girls', may attend, as well as visitors from smaller, neighbouring schools.

The usual weekly examination, in which the subject is announced very little beforehand, happened recently to be history. It was the intention of the teacher in charge in the upper classes to make this examination a practical one. The girls were told, several days in advance, that they might model, draw, paint, or express in any material available which they cared to select, something depicting life in the particular period under review. This called forth great activity, begun several days previous to and culminating in the examination-hour, and the results served as most instructive lessons to junior classes later on. A study of pre-Aryan times inspired most telling illustrations in clay, of the way in which the aboriginals dwelt in caves and huts, their customs and their worship; a little group of scenes showed Asoka's beneficent public works in the provision of wells and roads, a department of alms-giving, and pillars with their inscriptions of ethical value; the Mughal period was rich in buildings, in their setting of gardens—in which clay, matches, raffia, miniature bamboo and paint were effectively requisitioned; plaques of rulers and reproductions of coins were interesting also. A great outburst of expression-work of that kind, recalling India's ancient past, does a great amount of good in this age, when it is by no means simple to be a consistent nationalist or as devoted to exclusively Indian culture as sometimes would seem to be correct for any true patriot!

A notice-board, upon which appears each Monday a thought for the week, supplied by a member of the staff, and illustrated as copiously as the school picture store permits, is another outlet for such sentiments. A week spent with 'Mother India' and her ancient glory, seen through a Bengali poem of Dr. Rabindranath Tagore, is followed, without any unnatural transition, by a week in Shakespeare's company, illustrations being provided by *Pictorial Education*, as the previous

subject had found wealth of illustration at hand in the Indian daughter of that valued publication.

These are difficult days of self-consciousness for Indian girls and boys who think. But a school is a very good place in which to encourage thinking aloud—or even sifting of second-hand opinions brought from fathers and brothers at home. Once the children are convinced that staff, both western and Indian, are in sympathy with Swaraj aspirations, and the idea gains credence that the most fruitful Swaraj will be that which learns from others in the world-family of nations, a school may make many adventures within its own borders, in ‘Dominion Status’, and send its daughters and its sons out into the community not to destroy but to create, not to strive but to share, and thus to help establish that kingdom of lovers of true freedom and service which shall ensure fullness of life to all.

ELEANOR RIVETT

A VIEW OF POETRY AND APPRECIATION

I. Poetry and Appreciation

Poetry

Many attempts have been made to define Poetry, but though most definitions say something true about Poetry, yet none hitherto has said all that is true and avoided all that is false. Nevertheless, we must have some idea as to what Poetry is, as to when we are in the presence of the real thing, and when, on the other hand, false things which are not Poetry are being offered us. We will first state, then, what ought not to be accepted as Poetry, and, having thus simplified our search for the real thing, go on to give positive characteristics which, separately or together, are found in Poetry.

What Poetry Is Not

Negatively considered, then, Poetry is not simply Verse, that is, it is not simply writing cut up into lengths, with a certain number of syllables in each length, and a certain arrangement of accented and unaccented syllables and of rhyming sounds at the ends of the lengths or lines. If that were so, then any page of any prose book could be converted into Poetry by a suitable chopping up of lines and a little rearrangement of words, so as to get accented and unaccented syllables into some sort of regular order; conversely, any page of Poetry could be turned into Prose by printing the words straight on from one margin of the page to the other, without taking account of the poetic form. Poetry, while it normally uses Verse as its vehicle, is not merely Verse, but something

much greater. We must distinguish Poetry and Prose by their purposes rather than by their appearance, and it is best to begin with Prose.

The Purposes of Prose

Monsieur Jourdain, the chief character in a comedy by the Frenchman, Molière, was immensely surprised when he first learnt that he had been talking prose all his life. And that is the main business of Prose, to serve as a vehicle for our ordinary intercourse in life ; we talk Prose all day long.

But there are higher purposes of Prose besides ordinary human intercourse. Prose is the medium of thought and argument ; it is used for recording facts and giving judgments. In all matters in which knowledge, common sense and reason play dominating parts, Prose is the necessary tool of expressing what goes on in the human mind. That is, not only the ordinary occupation of living, but the higher occupations of recording History, of propounding Philosophy or stating and expounding Law, of affecting people's judgments by Oratory, cannot do without, but must use, Prose as their vehicle of expression. That is, the speech and writing of men under all ordinary conditions of life is Prose.

The Purposes of Poetry

It seems to follow, then, that, if Prose occupies all our ordinary affairs we shall have to look for Poetry among the extraordinary conditions of our life. And that is so, only we must not exaggerate the meaning of the word 'extraordinary'. It is meant to cover, here, the times in our human experience when we are lifted above the ordinary level of calculation and convenience, when we are moved by impulses and emotions that are not constantly present and do not rule our everyday practice of life, when we pass through experiences that lift us above our normal selves. These times are usually those when the greater human emotions of love, pity, terror, hate, admiration, wonder or fear are aroused, and these emotions affect our minds so that we both experience life in a different way from the normal and also express our strange experience in a new way. This 'different way' of experiencing is the atmosphere of Poetry, an atmosphere of heightened sensibility and of increased mental power, and the 'new way' of expressing this poetic experience is one which, while it uses the words and most of the constructions of ordinary speech, yet it uses them in new ways, pictorially and not logically, and arranges them in patterns of rhythm and sound in addition to sense. The result is that Poetry, while it lifts us above the ground and wraps us round with a new atmosphere, also makes a new language for us wherewith, when we try to express what is happening to us, we rather sing than speak. The purposes of Poetry, then, are to give and to express heightened experience, those states of

mind which everybody enters into occasionally in life and which a few men in every generation, called 'poets', both enter into frequently and are specially endowed with the power to describe in language.

The Approach to Prose

As a result of the foregoing consideration, it is evident that we should approach Prose as we approach the everyday world, that is, with a view to understanding it. Prose deals with the ordinary things of life and requires the application of our common sense, our reason and our common experience, to absorb what it has to say and to make it our own. Even when Prose tells us of things of which we have no experience—like the stars or the reign of Asoka—it tells us in terms of things known to us which are like them, and we accept the new knowledge because it fits in with the old. In approaching Prose, then, we rely on our intelligence and we pursue the path of understanding.

The Approach to Poetry

On the other hand, when we approach Poetry we are aware now that we are about to enter a world with which our ordinary experience does not make us familiar, and where ordinary rules of guidance must be discarded. It is no good trying to understand Poetry in the same way in which we understand Prose. Poetry is not going to instruct us in the conduct of our affairs or tell us what will probably happen to-morrow so that we should prepare for it, nor does it deal with the height of the stars nor explain the workings of our minds. Rules of logic and probability must go overboard on this voyage into Poetry: we have now to make our minds function in a different way from the normal, in a way which is usually called Appreciation, in contradistinction to Understanding.

What is Appreciation?

The answer to this question is best found in an illustration taken from one of the commonest things, viz. water. Regarded understandingly, a glass of water presents to the intelligence a liquid of a certain appearance, definite specific gravity and chemical composition, and various uses. Regarded appreciatively—while all these facts about it may be known—it presents to the senses a certain clarity, brightness, coolness, sweetness, and to the memory a recollection of rivers and wells and brooks and rain, and to the imagination a vision of its source and powers which, altogether, create an impression much higher than the merely physical, so that, quite apart from quenching thirst, it gives a satisfaction which no recurrence of physical thirst can ever take away. To be aware of these aspects of water is to appreciate it in the sense of appreciation which

we here employ, a sense quite apart from its uses, though the uses of water are not denied by this appreciation.

What There Is in Poetry

Now we can fulfil the promise made at the beginning of this part to give the positive characteristics which, separately or together, are to be found in Poetry, and which distinguish it from any other form of writing. Prose, we have seen, records facts and thoughts dealing with things which we come across or hear of in our ordinary life. Poetry, on the other hand, records experiences which are the *relations* between our minds and the facts or thoughts which we come across. That is, Poetry tells us how the poet feels and behaves—or makes other people, called characters, feel and behave—in the presence of facts or thoughts. In writing, therefore, while Prose is satisfied to record its material by direct statement and description with as little relation as possible to the writer himself, Poetry sees everything through the eyes of the writer, and records not the outside events simply, but the way the writer sees them and the effects they have upon his mind. Poetry is a record of the reactions set up in the poet's mind by persons, thoughts, events or fancies which strike him.

Correspondingly, there is a clear difference between the method of presentation used by Poetry and that used by Prose. Prose employs reason and arranges its statements according to their logical coherence; it normally prefers abstract to concrete terms, and it follows the processes of thinking. Poetry visualizes its object, presents it in pictures, either by direct description or by indirect metaphor, and is guided by the methods of the imagination. Finally, Prose considers almost exclusively such virtues of writing as clearness, cogency, proportion, accuracy, truth to fact. Poetry, on the contrary, appeals to the imagination through the senses, awakens the emotions, by presenting its matter in rhythmical form, and is not satisfied till it has achieved beauty, which is truth to the imagination. In brief, Prose addresses the intellect mainly; Poetry appeals to the whole human mind, affecting the emotions and the will as well as the intellect. The object of Prose is the attainment of Truth, that of Poetry is the attainment of Beauty.

The Appreciation of Poetry

If, then, the truth of Prose is seized by understanding it through the intellect, we require a word to describe how the imagination apprehends the beauty which is presented by Poetry. The word generally employed is Appreciation. By Appreciation we mean the way our mind grasps all the sides of a poem—its central experience, the images by which it presents the experience and the music of the rhythm, rime and words which express the tone and inner spirit of the experience.

This many-sided appreciation comes naturally to those who are poetic by temperament. They require only to hear a poem well read and they apprehend at once both the experience imbedded in the words and the beautiful fitness of the words themselves; they appreciate Poetry without analytical help. Still, even they can gain by an analytical consideration of the pleasure they are receiving, and what follows here may be read with profit by them as well as by those who find Poetry difficult and confusing and are tempted to think that it is only a complicated way of saying what could be said much more quickly and easily in Prose.

The purpose of this first part has been to show that Poetry and Prose are two entirely different things, as different as a silver vase and a rupee, and that, while both Poetry and Prose use words as the vase and the rupee use silver, if you try to convert Poetry into Prose by the process of paraphrase or any other method you will be destroying the real value of Poetry just as much as you would destroy the value of the vase by melting it down and stamping it into coin.

II. The Kinds of Poetry

Meaning of 'Kinds'

The previous part has spoken of Poetry with a capital 'P', as if it were a person or a spirit, which is a very near description of it. In this part we have to consider its concrete manifestations, the various forms in which this spirit clothes itself.

The word 'spirit' means 'breath', and a simple way of illustrating the 'forms' or 'kinds' of Poetry is to recall the different effects which the human breath can produce when blown into various musical instruments. There is, first, the effect produced by a single performer on an instrument; here everything depends on the complexity of the instrument and the skill of the performer whether the effect produced will be slight or profound, but, on the whole, it is an easily recognizable effect of an isolated character and very expressive of the personality of the performer. Next, there is the effect produced by a collection of performers, playing on different instruments grouped in certain ways and all combining to make harmony together, as an orchestra does; this is a very different effect from the first, one in which the identity of the performers is almost entirely lost and harmony takes the place of melody. Finally, using wind instead of human breath, a single performer may produce on an organ, by employing the various keyboards, stops and combinations of pedal and hand-playing, effects far fuller than that of the single performer in the first instance, effects giving some of the impressions produced by the orchestra,

but still keeping the character of a single personality controlling the whole.' Now all these effects result from the one cause of breath or wind, and are various manifestations of that cause.

In a similar way we can speak of kinds of Poetry, though there is but one spirit of Poetry creating them all, and, as with music, the kinds are distinguished from each other by reference to the instruments or methods of production, not to the spirit, which is one.

Three Kinds of Poetry

English literature has learnt from the Greeks, who were the first great masters of the art of Poetry in Europe, to distinguish three main kinds or forms of the art. These subdivided forms appeared quite separately and, actually, one after the other in a chronological order, and so are not merely abstractions made by thinkers about Poetry. The first in order to appear in Greece, and also in England, was Narrative Poetry; the second in both countries was Lyrical, and the third was Dramatic. There are definite reasons, inherent in the nature of the three kinds, which explain why they should have appeared in this order among two peoples of such widely differing origins and national characters as the Greeks and English, and why, in probably all races prominent in the production of Poetry, the order should have been always the same. We will examine the distinctive features of the three forms in order.

Narrative Poetry

The characteristics of this form are that the poet himself is represented as reciting the poem, relating the events, introducing the characters, and, where necessary, explaining the higher significance of the events by revealing the hidden causes, whether divine or human. He stands outside the story, not representing himself as taking part in the action, but he is evidently deeply interested in what he relates, though he avoids unfairness or bias even when his sympathies are clearly with one side rather than the other. A second characteristic is that the hearer's interest is centred by the poet on the story itself, on the chain of events which began from certain causes given by the poet and led to an end as definite after passing through many ups and downs that might have led to quite different endings. There are characters, of course, usually strongly marked and often in great profusion, but, however great they may individually be, they are subordinate to the general action as the pieces on a chess-board to the issue of the game. Thirdly, there is a tendency towards length in the recital. Even when a narrative poem has few characters and deals with but a single incident, it spins the plot out because it not only represents human action and character, but chooses plots of considerable depth and, as far as possible, universality of occurrence. Then, lastly, in a narrative

poem, the poet's eye is turned outwards, regarding the world around him, representing men and women in appearance and action and speech, without subtlety or analysis, as moved by the general passions of mankind and acting along normal lines. This form appears at the beginning of a nation's history, when some great struggle, which determines its existence and sets its character, is being fought out.

Lyric Poetry

This bears one main resemblance to Narrative Poetry in that the poet is still the speaker, but there the similarity ends. The mind of the poet is now turned inward upon itself. He relates what he has experienced and felt and thought in consequence of some event, and the hearer's interest is focussed not upon the event itself, but upon the consequences of the event to the mind of the poet. Sometimes, it is true, the reciter of the poem seems to be other than the poet, but he nonetheless evidently represents an attitude of the poet, who is only borrowing this method of expression from the third kind of poetry, mentioned below, so as to enhance some effect he wishes to produce. Here the length of the poem is very various, sometimes exceeding the shortest narrative poems, but never extending far beyond the limits of about a hundred lines. The reason for this comparative shortness, which is a very characteristic mark of Lyric Poetry, is that the subject matter is always confined to one event or view-point or emotion, and the exploration of this single thing makes the poem. Naturally, the extent of the appeal of a lyric depends on the breadth of the subject or the power of the poet, but what this form of Poetry loses in breadth it attempts to make up in poignancy and depth. It is, above all things, a product of self-analysis, and belongs, therefore, to a period of development in a nation when the first age of heroic action has passed and there has succeeded an age of more settled life, less stormy and insecure, and more at liberty to think of the fate of the individual as against the fate of the race, which was the preoccupation of Narrative Poetry.

Dramatic Poetry

This form appears in a still more settled state of society than the second. Now the wars which made the nation and gave it its land are long over, also the culture of the individual of the lyric age is now shared by great numbers of citizens, and the city state is mentally occupied with problems of government and human conduct in the large. The poet who presents these problems in his plays withdraws himself as completely as possible from what he represents, since his personality and opinions and feelings would distort the view-point or the elements of the great subject with which he is dealing. He, therefore, hands

over the action, of his piece to his characters, who, although they take their life from him, yet represent points of view which are distinct from his own. The most obvious characteristics, then, distinguishing Dramatic from the other two kinds of Poetry is that dialogue is used instead of recital, and that the poet disappears behind the characters which he creates to carry on the action. We do not know, therefore, as we do in the other two kinds of Poetry, the attitude of the poet's mind towards either his characters or the theme of his plot.

The main distinction of Dramatic Poetry, however, is that the emphasis is laid on action, meaning by that not deeds nor any external series of events, but an inward change of mind and fluctuations of feeling in the characters, especially the leading ones, and an interaction of one character upon another which bring about the external actions. It thus comes about that, since interplay of character is so important a part of drama, some dramatists, like Shakespeare, spend most of their strength on the creation of individual characters, and these characters grow more important than the action of the play, which should be the main interest. In spite of the supreme greatness of Shakespeare's characters, we can still say that the movement of the idea of the play should be the greatest thing about it, greater in interest than any or all of the characters.

Subdivisions of the Kinds

Having given the main characteristics of the three great kinds of Poetry, we turn now to consider various types of poems which have arisen within each kind. It must be remembered that our study of the forms, so far, is largely abstract, and that when we come to actual examples of Narrative or Lyric or Dramatic Poetry, we find that there are concrete differences between poem and poem which make further subdivision necessary. The result is that, while all the sub-forms of one kind of Poetry have the main characteristics of that kind, as described above, yet each sub-form differs from the others of the same general kind by restrictions of matter or emphasis or by the mood or purpose of the poem.

Forms of Narrative Poetry

Historically, the earliest form in which Narrative Poetry appeared in Greece or in England is the Ballad. The Ballad is a difficult form to define, but beg it an as a song by a group of people collected together for work or play, and its subject-matter was either their occupation or some story they all knew. Thus we have 'chanties', which sailors sing while they attend to the sails or heave up the anchor by pushing round the capstan-bars. Such ballads had no single author, but were built up little by little by folk-groups, and had the peculiarity of being partly songs and

partly stories. Later there appeared professional ballad-makers, who changed the character of the Ballad by making it emphasize the story-interest, and the singing character of the Ballad and its appearance of having been built up little by little passed away in favour of a more descriptive and more regular method. It is this latter kind of Ballad that is still written now by professional poets.

Next in time after the Ballad came the Epic, which was some kind of putting together of numbers of ballad-stories, related together by their dealing with the same great historical theme. We do not yet know how the great ancient epics were put together, whether the great poet who now claims the authorship of a given epic was the first to put the old ballads together or whether he was the last of a long series of professional singers who worked at the building up of the Epic. We have, however, the result of these poetic labours in the Epic itself, and its characteristics are very much the same all over the world, as also are the Ballad's.

Third came, at a later time, a kind of narrative poem which goes by the name of the Romance. This is definitely the work of a professional poet, though ballads have in most cases formed the groundwork of the poem. It is, however, distinguishable fairly readily from the Epic when we go into details.

Examining these details, we see that the Ballad is a shorter narrative poem dealing with a single incident and introducing very few characters; it is also written in a definite metrical structure of its own: in England it has a measure of four lines to the stanza, which has been called the Ballad Metre. There is no effort at grandeur or sublimity, for the magnitude of the subject is not sufficient for that. Finally, the appeal of the Ballad is to the simpler emotions and to average intelligences.

The Epic takes affairs and human character on the grand scale, and often, indeed normally, includes the gods in its scheme. The theme is nothing less than the fate of a nation, or, at least, of the national hero who created the nation concerned. There are masses of persons introduced, and such numbers of principal and subsidiary events that the poet's difficulty is to distinguish his persons sufficiently from one another and to give sufficient variety to his 'episodes', as the incidental events are called. In many ages and among leading nations of the earth, the creation of an epic poem has been accounted the supreme effort of which the human mind can be capable, since the epic poet must have not only an immense knowledge of the practical arrangements of life and of human character, but, still more, he must be possessed of a vision of human development and fate which transcends the best thought of his own and earlier ages.

The Romance is an epic of a lower kind and of different emphasis. It is lower in kind because it does not attempt to penetrate into the divine secret of human life, but it accepts a solution of human destiny currently held in the time of the writer, or else, more frequently, it leaves all such high subjects severely alone. Its emphasis is different in that, though its subject *may* be a national hero or a national crisis, such is not generally the case, but a less famous person is taken or a less tremendous course of events, and, in any case, it is not the nation or the crisis that is celebrated, but the martial exploits of the hero, his loves and his adventures. This kind of narrative poem was a product of medieval times in Europe, imitative of the ancient epics but picturing the life of a society much softer in manners though still military-minded, a life where woman was, theoretically at least, venerated as the queen and mistress of man. It is from this characteristic of woman- veneration in the Romance that the word 'romantic' has received its special colouring.

Forms of Lyrical Poetry

The name Lyric explains the origin of this kind of Poetry, for in Greece, where the name arose, this kind of poem was sung to the accompaniment of a stringed instrument, called the 'lyre', which looked like a very small harp. Lyrical poems are, therefore, first of all songs, a name which, however, covers a number of different types of song and gives only the general impression that this kind of poem must be tuneful and adapted rather to *singing* with musical accompaniment than to *recitation*, such as epics and romances received, although these were also accompanied by music.

Still, the word 'Song' is used distinctively of a very short poem of lyrical type which is capable of becoming the words of a song, and the subject is usually human love of some kind, either between man and women or parent and child or friend and friend.

Next, Odes are lyric poems devoted to grand subjects, such as national events or heroes; or to great subjects such as Death or Immortality. During the last hundred-years it has come to be applied to longer reflective poems, which address—'apostrophize' is the technical word—any object the poet chooses so long as the content of his poem is rich in deep thought and feeling.

Another type of the lyric is the Elegy, which is simply explained as a song of mourning. The subject lamented may be anything the poet will, but the greatness or meanness of the subject decides largely, of course, the dignity or slightrness of the poem.

Among the shortest poems of the lyrical kind is the Sonnet. This is easily recognizable by its shape and size, for it consists

generally of fourteen lines and is controlled by a definite arrangement of rimes. There is a great variety of subject-matter among the thousands of sonnets which have been written in the last 600 years since the form was created, so that one may say that a sonnet can be written on any possible subject. The distinguishing feature is the passionate and reflective cast of the expression and the very controlled and fixed form in which it is written.

Forms of Dramatic Poetry

Dramatic Poetry came last in time, we saw, both in Greece and in England. This is due to its need, not shared by the other main forms, of a specially built or arranged space for its representation. An epic or a lyric poet requires only hearers, arranged anyhow; the dramatic poet requires a stage and costumes for his actors, and, as dramatic art progresses, a mass of paraphernalia that goes to make up a theatre and forces his audience to come to him instead of his going to them, as wandering players once did. These complications in the machinery of representation demand an advanced state of society to support them, and this circumstance, along with the one mentioned, viz. that the Drama dealt with social theory and observances and presupposed a public well prepared to understand its treatment of such, brought the Drama comparatively late into the field of Poetry.

Drama deals with action, that is with events going on inside a group of human minds, and especially one or two of these minds. It presents also a conflict between these minds, or between these minds and social or moral laws. If this conflict leads to the ruin or death of the principal character or characters, the drama is called a Tragedy; if it leads only to their disillusionment with life or with themselves, it is called a Comedy. Usually a Tragedy depicts a great personality in conflict with forces which play upon a weakness in his otherwise strong character, and the play shows his gradual breakdown under the stress of this conflict. A Comedy, on the other hand, shows, at the beginning of a play, characters with wrong ideas about certain matters in life, who, in the course of the play, have the truth revealed to them and suffer nothing worse than a change of mind and perhaps some ridicule.

Besides these main kinds of drama there are Historical plays which may, by the course of their action, be classed as tragedies or comedies, but often, as with Shakespeare's *Henry V*, are neither, but have elements of both, being serious in parts but ending happily. There are also Satirical and Symbolical plays, with neither of which we need to deal here. Of a lower kind are Melodrama and Farce. Melodrama is a sham tragedy, where the external events are serious and end

unfortunately for the principal character or characters, but the suffering is not due to inherent faults in these characters, but to chance events outside them or to chance actions of other people. Farce, in like manner, is a sham comedy, where the unmasking is not that of a false idea in the principal character, but of a trick which has been played upon him and which he is not entirely responsible for.

Importance of Classification of Kinds

It may be asked why so much trouble should be spent on these distinctions between kinds of Poetry. The answer is that each kind of Poetry has its own appropriate method of appreciation, and we must be clear to which kind, and even sub-kind, a particular poem belongs before we can approach it rightly. It would be manifestly absurd to treat a Tragedy as a Comedy, and we are sufficiently clear about the distinction between these not to do so, but it is really just as bad to treat a Melodrama as a Tragedy or a Ballad as a Song, or to confuse an Ode with an Elegy. When it is decided of what kind a particular poem is supposed to be, then we can expect certain characteristics to be present in it, those characteristics of the kind or sub-kind which have been stated in this chapter, and we can go on then to examine the workmanship in the poem, in order to judge what quality of genius is displayed in the poem and how far the poet has succeeded in his object. And this is Appreciation.

EDWARD PARKER

PSYCHOLOGY IN EDUCATION

THE late James Ward, lecturing in 1880 to intending teachers, said, 'The day may come when he who professes to be an educator without this knowledge will be esteemed little better than a charlatan and an empiric.' The knowledge he was referring to was a knowledge of ethics, logic, and psychology. All these studies have an obvious bearing upon education. Every teacher ought to think out for himself what aim he has in education. He must wish to make of his pupils men of one kind rather than another. So far as his aim involves setting up some ideal of character and conduct, it is ethical. So far as it involves training in right thought and in the method of the sciences, it is logical. So far as it involves a knowledge of human nature, and particularly of how mind grows and how it is thwarted, it is psychological.

Now although a knowledge of psychology strengthens the teacher in his daily work and lightens his burden, it does not point out a way of teaching perfection. If there is one best method it has yet to be

discovered, though many panaceas of the kind have been suggested and have enjoyed their day of popularity. It may be that some teachers have expected too much of psychology. They have sought to find the solutions of their professional worries, the answers to all the questions they are perpetually asking themselves, in a little handbook. And handbooks of psychology have been made for them in plenty. Now psychology ought to help, and does help, with the embarrassments of the moments, but it has a much greater service to render to education, a service which has been lost sight of in the preoccupations of the daily task. The handbooks, so popular among those who wish to avoid the painful process of thinking for themselves have usually some such title as *Psychology for Teachers*, or *Psychology in the School*. But there is not one sort of psychology in school and another outside. Mind works in the same way wherever it is found. Children think about geography in the same way that they think about a story; they think about arithmetic in the same way that they think about the problem of buying a present or the possibility of receiving one.

Psychology for teachers is like history for socialists; both historians and socialists are dissatisfied with the result. So, both competent psychologists and thoughtful teachers unite in ridiculing 'Psychology for Teachers'. All psychology is educational psychology. It is true that the precise applications of general psychological theories to education may be pointed out, but only harm can result from dissecting these applications from the body of psychology and presenting them separate and lifeless.

What, precisely, then may the study of psychology be expected to do for the teacher and for education. The gardener, wishing to grow the perfect rose, must needs know the nature of rose trees, the soils and aspects in which they best thrive, the time to plant and to prune, to manure and to water—all these things. These same problems, expressed in terms of his own subject, have to be faced by the teacher. He must understand, for instance, with what raw material he has to deal; he must know what native powers, such as instincts and inherited traits, are in the mind of the child. And he must know the natural course of the mind's development. He must learn to work with the grain of the child's nature, and not (as so often happens) against it. Both the gardener and the teacher modify nature, but the gardener would not dream of defying her. The teacher, through ignorance, sometimes does this, with the most disastrous results—unstability, lack of energy for intellectual pursuits, hatred of the higher pleasures, and intellectual dishonesty. These are familiar weaknesses. But they are not always recognized as results of defective education. The study of psychology is intended to familiarize teachers both with the nature and the nurture of the child.

It should help to prevent that warping of the child's nature which so often passes for education.

Moreover, many actual details of teaching method are suggested by psychology, particularly in matters such as these :

(a) The best methods of arousing interest and sustaining attention. (b) The conditions for successful observation. (c) The best ways of explaining things. (d) The best ways of learning by heart. (e) The need for different methods of treatment for different ages, both in narrative, in reasoning, in relaxation and in individual work. Indeed the clear recognition of the vast difference between the immature and the mature mind is one of the debts which education owes to psychology.

Furthermore, it is becoming more than ever desirable that the teacher shall be a competent critic of current educational practice ; and that he should be able to do something towards the improvement of existing practice. He must be able to pronounce some judgment on new theories and old revivals. The Play Way, the Dalton Plan, the Project Method, are seldom to be adopted wholesale and blindly. The teacher who adopts the intelligence test, for instance, that great new instrument by which it is hoped to measure the mind simply and accurately, must understand it, and, more important, must understand what he is measuring and what he is not measuring. In all these matters, psychology can help.

And lastly, it is admitted, even by people who do not like psychology, that a master must understand his pupils, and that he is successful with them in proportion as he understands them. But to understand boys is half way to being a good psychologist. Experience alone will give a certain mastery in the handling of individuals, but between random experience and systematized experience there is a world of difference. Psychology gives just that groundwork, that preliminary knowledge, which is necessary if experience is to be thought over, classified, arranged and used to the best advantage. And, most important of all, psychology can help the teacher to understand himself, although one must admit that the knowledge may prove at first rather embarrassing. No man is free from prejudice and bias, but the teacher above all must avoid allowing his judgment to be swayed by them. And this is difficult, for we do not appear to ourselves to be in the least prejudiced or biased. It is the other fellow who is always unreasonable. We are all of us apt to be rather like Galsworthy's American, who had a sublime disregard of morality for himself combined with a strong sense of moral turpitude in others. The new psychology can show us in which directions our vision is likely to be blinkered, and so we can be on our guard to avoid, on the one hand, an undue partiality towards certain types of character and modes of activity, and, on the other, a severity or

lack of sympathy towards certain misdemeanours. In short, psychology should help us to perform an experiment which cannot fail to be of great value to us as teachers—‘To see ourselves as others see us.’

W. S. TOMKINSON

THE AIMS OF HISTORY TEACHING

AN analysis of the school curriculum shows us that *three kinds* of subjects find their place in it. Some of them are arts, like drawing, music; others are sciences, like physics, chemistry, mathematics; and the rest are humanities (or humanistic subjects), like literature (classical and modern), geography, philosophy, logic, and religion. History belongs to the last and the most important group of subjects. It seems that man realized the value of these humanistic subjects from earliest times. If you glanced for a while at the history of education of the various nations in the world, you would find that the humanities (or the humanistic subjects) had the first place in the school curriculum. In almost all the races conscious education began with religion, proceeded to literature, and prospered on history and philosophy. The *Rigveda*, admittedly the oldest work in the world, is not only a history of the Aryans in India, but shows us that even in those ancient days history was taught in the *Guru-Kula*. Stories of kings like Sudas and of saints like Vashishtha, descriptions of wars and progress of tribes are read in the different chapters of the great work. When the epics, the *Ramayana* and *Mahabharata*, came to be composed, history teaching attained its height. The study of arithmetic, geometry, grammar or medicine came much later. From that time to the present day history has occupied a place in the school.

Europe has a slightly different story to tell. In the days of Greece and Rome humanistic subjects were taught in schools, but later, when the Teutonic races conquered the whole of Europe, technical and professional education flourished. Again the wave of humanism came on with the sweet songs of Petrarch and Dante by the 14th century; they proclaimed to the world that man was to be educated not for the State, nor for society, but for his own sake. His capacities and accomplishments were to be cared for, his all-sided development was to be the aim of education. This was the beginning of the Renaissance movement. At first only Latin and Greek came to be taught in the new schools, but later, when great teachers like Pestalozzi, Fröebel and Herbart appeared on the scene, history found its place in the schoolroom, and has ever since continued to occupy it.

The reasons given by those great educators in India and Europe for the inclusion of history in the school curriculum clearly set forth its

educative value.- The educationist, Jones, says, 'History is a veritable mine of life-experiences, and the youth of to-day studies history that he may profit by the experiences of the race. The great problems of the race do not die, but are ever present; and history is immensely valuable in that it reveals the evolution of their solution.' The historian, Froude, proclaims, 'History is a voice for ever sounding across the centuries the laws of right and wrong. Opinions alter, manners change, creeds rise and fall, but the moral law is written on the tablets of eternity.' Many such quotations can be found explaining the utility of teaching history in schools. But the strongest point that deserves to be remembered in this connexion is that history is the science of human activities and that in history alone we see how man behaved with man; how he fulfilled his obligations and enforced his rights; how he suffered and sacrificed for his brethren; or how he pushed on and fought for his own ambition. In no other subject can we see so much of man as a man, as a social and political being. Thus history demands the greatest attention of the educator of the young if he wishes to transform them into real human beings.

From this the aims in history teaching are easy to formulate. They are chiefly two-fold: (1) utilitarian and (2) cultural. Let us discuss these for a while:

(1) Its Utilitarian Aim. First of all we teach history to our pupils so that the information they get in it will be useful to them in their future life. In these days of civilization one meets with so many references to the past in newspapers, periodicals and other books, that it would be impossible to understand them if one did not know history. We are heirs of all the ages, and as such must know what our ancestors have left behind them for us. We must have a full knowledge of our heritage, that we may make good trade out of it. It is a common experience that one must know the full antecedents of a business to be able to work at it successfully in future. Here we are concerned with the business of our life, and thus the dictum holds good with much greater force. Man's duties in this world are so manifold that the guiding stars of the past are a necessity to him in their successful performance. Especially on the duties of the citizen a knowledge of history throws good light, and the student of history knows how to help the State, how to solve social and political problems. Suggestion is such a strong force, and at times works so effectively, that the life of an individual takes a different turn altogether under its influence. The poet was quite right when he said:

Lives of great men all remind us
We can make our lives sublime
And departing leave behind us
Footprints in the sands of time.

Such 'footprints' of great men in the past occasionally inspire the receptive minds that come in contact with them; and we read that some persons are induced to turn over a new leaf simply by reading the biographies of noble souls. Examples are always better than precepts, because man takes up a concrete suggestion more readily than an abstract one; moreover, when both the example and the precept combine—as in history—their resultant action is very strong. That is why (as was said by Carlyle) hero-worship has been such a fruitful occupation of man in all the ages.

A knowledge of history is also useful to us when we go on travel. If we know the history of the different places we visit, they carry a new meaning to us. We say then to ourselves, 'Oh, here it was that Sivaji used that trick, misled the enemy and carried the day.' The inanimate stones and walls in such a place tell the tale so vividly that the visitor feels as if the past is made living before him for the time being. On another occasion history may give the traveller a word of caution. He remembers that at this place was the navigator betrayed and murdered. He takes the hint and is on his guard.

Thus we see that in spite of Herbert Spencer's condemnation of history (he said that historical facts were of no use) and the opposition of certain Jesuits, who held that the study of history created disrespect for existing authority, its knowledge is useful to man in more ways than one—a knowledge both of the facts and of the philosophy of history; because it includes an account not only of princes and generals, of wars and plots, of debates and treaties, but is a record of social and industrial progress, and of the growing activities of man. Even its facts are useful in that they give us an idea of *chronology*, so necessary for a civilized man.

(2) Its Cultural Aim. The cultural aim is still more important. It takes into account not the subject-matter so much as the mental and moral training which the learner gets. Knowledge is power no doubt; but the ability to gain and use knowledge is a greater power. Future generations will have new problems to face; a knowledge of historical facts might not be helpful in their solution; but if the leaders had the necessary training in the right way of thinking they would be able to tackle those problems successfully. The poet was right in saying

New times demand new measures and new men.

Culture is not very easy to define. Matthew Arnold says, 'It is an acquaintance with the best that is known and said.' This is perhaps not a full definition of culture, as it refers only to the material side of it. Culture is also defined as constituting 'an inward condition of the mind as opposed to dependence upon external and mechanical appliances, and

a facility of refined manners and speech'. This definition, too, is somewhat superficial. It does not take us deep enough; culture is, again, defined as the 'training of the human spirit'. This includes both the individual and social ideals, and may be considered to be a fairly good definition for all practical purposes; though it leaves out the intellectual side of it. Culture is essentially a training of the human spirit from the human point of view for the good of humanity. Now let us put history to this test and see how far it satisfies these conditions.

It is a common experience that the study of history trains the imagination, memory and reason of the learner. While hearing or reading vivid descriptions of historical incidents, the past, as it were, becomes living. The pupils try to produce a mental picture of them, and in so doing have their intellectual powers developed. The teacher occasionally asks for the causes of an event, or leads them to arrive at a logical conclusion from the data of facts, or to compare and contrast two characters; and in doing this their reasoning faculty is trained. Occasionally the pupils are called up to express their judgment on the conduct of a person on a particular occasion. Such an exercise of their mental powers, if thoughtfully and judiciously attempted, is sure to train them in independent thinking.

Moreover, the nobler sentiments of man can be roused by graphic descriptions of situations in history lessons. The teacher has to use the necessary gesture and intonation in telling such stories, and to suggest an appreciation of the right and a condemnation of the wrong. In such history lessons occasionally one finds pupils dancing for joy at 'the coronation of Sivaji', actually sobbing in Tanaji's story, and cursing Baji Rao II on hearing of his suicidal policy. Young minds are always too eager to catch such hints. But here the teacher should guard against stimulating a wrong emotion. Patriotism, for instance, is easily stirred up in young minds, but they must not be encouraged to think that whatever their people did was right or that an enthusiasm for one's own country necessarily includes a hatred of foreigners.

It is in history that our pupils ought to learn 'the ultimate triumph of righteousness'. For a time wrong may win, but in the end, either by revolution or reform, the right will be vindicated.

Time's glory is to calm contending kings,
To unmask falsehood, and bring truth to light,
To stamp the seal of time in aged things,
To wake the morn and sentinel the night,
To wrong the wronger till he render right,
To ruin proud buildings with thy hours,
And smear with dust their glittering golden towers.

(Shakespeare)

It is in history that our pupils ought to get the important idea of universal progress, or what is known as the theory of evolution. Progress, and not stagnation, is the guiding principle of nature and of man too. It is in history that our pupils ought to cultivate a sense of responsibility to society and to the State. While reading or hearing stories of injustice and persecution, the learner begins to feel for the victims, and thus gets a training in sympathizing with others, especially with the oppressed. The whole world is but a stage : actors coming and going ; generations live and vanish like waves of the sea ; kingdoms and empires rise and fall. Worldly greatness is so very transitory—

- (i) The glories of our blood and State
Are shadows, not substantial things ; . . . ,
Sceptre and crown
Must tumble down.
- (ii) They say the lion and the lizard keep
The courts where Jamshed gloried and drank deep.

By observing these ways of the world the pupil cannot but feel a sense of humility ; he is then led to think of the great pervading power that manages the stage, and to say to himself—

Turn from earthly things away,
Vain they are and brief their stay.

These, in brief, are the aims and ideals of history teaching ; and teachers will do well if they bear them in mind and manipulate their lessons accordingly.

* * * * *

New Examinations in History

(I) FOR JUNIOR CLASSES

Specimen Questions in History

1. When did the following events happen ? (The dates will be found among those given in the margin.)

- | | |
|------------|---------------------------------------|
| | (a) The defeat of the Spanish Armada. |
| 1492, 1526 | (b) The discovery of America. |
| 1588, 1757 | (c) The battle of Plassey. |
| 1849 | (d) Annexation of the Punjab. |
| | (e) The first battle of Panipat. |

2. In each of the following sentences choose from among the names in brackets the one that will make the sentence true :

- (a) Asoka patronized (Hinduism, Jainism, Buddhism).
- (b) Shahu was released by (Aurangzeb, Zebunnisa, Bahadur-shah).
- (c) The Reformation was begun by (Titus Oates, John Knox, Martin Luther, John Calvin).

- (d) The protector of England during the Commonwealth was (Oliver Cromwell, Cardinal Wolsey, Thomas Cromwell).
3. Supply the missing words in the following paragraphs :
- (a) The British first went to India as and formed in 1600 the Company. Their trade rivals were The foundations of the British rule in India were laid by who avenged the at Calcutta by his victory at
- (b) The Stuart period is noted for the struggle between the . . . and the In the reign of Charles I War broke out, the king's soldiers being known as and their enemies as
4. Which of the following persons lived the earliest ?—
- (a) Shankaracharya, Buddha, Tulsidas.
(b) Harsha, Krishna, Ravalsingh, Malikambar, Bapu Gokhale.
5. Which of the persons in the question above lived the last, or occupied the middle position in regard to time ?
6. Which of these was the greatest
- Soldier ?—(a) Humayun, Sher Shah, Behram.
Statesman ?—(b) Raghoba, Madhavrao, Bajirao I.
Poet ?—(c) Dnyaneshwar, Tukaram, Ramdas.
7. In each of the following lists draw a line under the most important event :
- (a) Execution of Mary Stuart ; Excommunication of Elizabeth ; Voyage of Drake round the world.
(b) Defeat of Shaistekhan ; Sivaji's Escape from Agra ; Capture of Sinhgad.
8. Draw a small sketch to illustrate the following events or stories :
- (a) King John submitting to the Pope.
(b) The marriage of Draupadi.
(c) Hindû and Moslem boys in the same school under Akbar.
(d) The collection of Chauth and Sirdeshmukhi.
9. Draw a time-line and mark these events on it :
- Houen Tsang's travel in India ; The exploits of Vikramaditya ; First Mahomedan invasion on Sindh.
10. Put a cross against the wrong entry—if any—in this time-line :
- | | |
|-----------|--------------------------|
| 1000 A.D. | Mahomud of Gazni. |
| 1100 „ | Ghor dynasty in power. |
| 1200 „ | Khilji dynasty at Delhi. |
| 1300 „ | Slave dynasty at Delhi. |
11. Imagine the words said by the following persons on the particular occasion, and write out briefly the speech or letter, as the case may be :

- (a) Queen Philippa pleading for the lives of the seven men of Calais ; or
 - (b) The invitation sent by Jaichand to Mahomed Ghori for another invasion of India ; or
 - (c) The speech made by Suryaji to encourage the retreating Marathas to fight.
12. Write the story in which these words occur :
- (a) Madhaorao ; Narayanrao ; elephant fight ; or
 - (b) Humayun and the water bags ; or
 - (c) Prince Edward and the horse-race.
13. The following actors played a scene in history. What was it about ?—
- (a) A Mahomedan king and his minister on horseback under a tree. A talk about some birds up there.
 - (b) An English king ; a shepherd and his wife.
14. What actors and scenes may be necessary to play :
- (a) The deputation of Krishna to the Kauravas ?
 - (b) The debate at Panipat in 1761 (in the Maratha camp) ?
 - (c) Jahangir's justice to a shepherdess ?
15. Point out the mistakes or absurdities in the following statements :
- (a) Cæsar prepared a large army and marched to the northern coast of France. Thence he drove in his chariots to England. There he found the dark natives ready to fight him. But he bombarded them with his huge guns and gained a victory.
 - (b) Harsha hurried to the scene of sacrifice. He was quite in time. Running up to Houen Tsang, who was bound tight to a post, he took off his hat and shook hands with him.

(II) FOR SENIOR CLASSES

1. Some of the following statements are true and some others are false. Say 'yes' against the former and 'no' against the latter, and put a dash if you are uncertain about any :

- (a) 'On the whole, the Tudors were strong rulers and the Stuarts weak.'
- (b) 'The Reformation increased the influence of the Church in State affairs.'
- (c) 'Treachery was the only strength of Aurangzeb.'
- (d) 'Sivaji was only a soldier, not a statesman.'

2. In each list below there are three causes and one effect produced by them. Find out the effect and underline it :

- (a) Anti-saloon League ; Prohibition Amendment ; Progress and education ; War-time needs.

- (b) Cruelty and vice ; Wrong selection of friends ; Sambhaji's failure ; Deviation from Sivaji's policy.

3. In each list below the first event is the cause ; find out from among the rest its direct or indirect effect and underline it :

- (a) Cabot's discoveries ; The voyage of Columbus ; The founding of Quebec ; English claims to North America.
 (b) Selfishness of Maratha leaders ; The downfall of the Mughal Empire ; The annexation of Sindh ; The growth of British India.

4. In each of the following sentences choose from among the phrases in brackets the one that gives the best answer or explanation :

- (a) Titles are given in order to (secure supporters of the Government party, encourage virtue and learning, strengthen capitalism).
 (b) Deputations are sent (to induce free discussion, to bring some individual merit to light, to force the party concerned into submission).

5. Name the person, place or event described or referred to in each of the following paragraphs :

- (a) 'Everything that was done bears the stamp of his personal action. No other English sovereign has ever enjoyed power so absolute..... The hateful story of his marriages.....'

- (b) 'From her father, son or consort,
 Woman never shall be free,
 For her wilful separation
 Stains her husband's family.'

- (c) 'An evening party—only that,
 No formal invitation ;

.....
 A tribe of red men, axe in hand,
 Behold the guests advancing.'

6. A certain person, place or event is described in the following paragraphs. Name the subject of description, put 'yes' against that description which you think to be the more correct :

- (a) 'The emperor is noted for his rigid attachment to his religion. He abstains from forbidden food and practices ; under the dictates of anger and passion he never passes sentence of death. He personally teaches his own faith to unbelievers and awards favours to his converts. All the infidels' temples have been destroyed. All over the country pensions and lands have been granted to learned

men and stipends to scholars. The excellence of character and purity of morals of this holy monarch are beyond expression.'

- (b) 'The emperor, devoid of the urbanity of his eldest brother, possessed, however, a sounder judgment. . . . He was reserved, subtle, and a complete master in dissimulation. . . . His life had been one of intrigue and contrivance, conducted with admirable skill. He was a very religious man and a dutiful king; but he allowed no toleration for other religions, and was often suspicious and faithless.'

7. What sentiment is roused in your mind when you read the following description :

- (a) 'It was a dark night. The king rowed down the river and stopped at the foot of the tower. The dismal turrets looked like as many stakes for impaling criminals. Soon afterwards three figures, one tall and two short, were seen feeling their way down the bank to the boat.'

- (b) 'To-day, my soldiers, you will show to the world of what stuff you are made. Remember the days when Sivaji fought on the battlefield. Let his spirit enter your bodies. Here is the Bhagwa Zenda flying over your heads. It inspires you to fight for your Dharma.'

8. Write out an imaginary conversation between

- (a) Henry VIII and Wolsey, when the latter was dismissed from the office.

- (b) Shahaji and Sivaji, when they met in 1660.

9. Draw the genealogy to show the relation between

- (a) Elizabeth and Mary Stuart.

- (b) Sawai-Madhavrao and Bajirao II.

10. Draw a graph to illustrate the following facts:

1646-1650—Sivaji takes Torna, Chakana, Purandhar, etc.

1651-1661—Sivaji's successful fight with Bijapur.

1662-1664—Sivaji attacks Mughal territory.

1665-1666—Sivaji surrenders to Aurangzeb.

Sivaji a prisoner at Agra.

1667-1680—Sivaji escapes and regains lost forts;

his expedition into the Karnatic.

11. Show, by short sketches, the different stages in the progress of:

- (a) The Hindu religion.

- (b) Indian agriculture.

- (c) Means of communication in India.

NEW EXAMINATIONS IN HISTORY

12. What does this group of pictures represent ? Give them serial numbers in regard to the stages in evolution :

- (1) Residence under a tree.
- (2) „ in a hut.
- (3) „ in house with walls and tiles.
- (4) „ in a house with tin sheets
- (5) „ in a house with stories.

N.B.—To be shown in pictures.

13. What does this group of pictures represent ? Put in the missing picture :

- (a) 1. A kite.
2. A lamp in a paper globe.
3. A balloon.
4. An airship. (Aviation.)
5. An aeroplane.
- (b) 1. Ingots of gold.
2. Melting pots and furnace.
3. Large plates cast out. (Work in a mint.)
4. Small round pieces cut out.
5. Stamped coins.

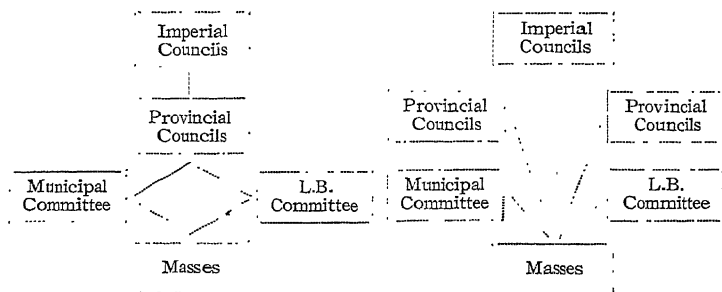
N.B.—All the above things to be shown in pictures.

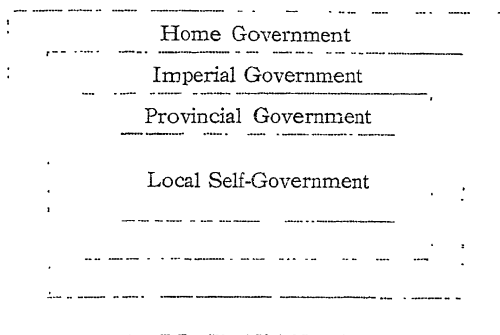
14. Show in the [given] map :

- (a) The fifteen Subhas of Akbar.
(b) Houen Tsang's journey.
(c) The battles in the 3rd Maratha War.
(d) British possessions in 1765.

15. Show the difference between direct and indirect representation by diagrams ; or

Draw a diagram showing the administration of India in a nutshell, e.g.





16. Draw (*a*) the plan of an ideal prison ; or (*b*) a diagram of the present educational system ; or (*c*) the plan of an election station ; or (*d*) of the Legislative Council hall ; or (*e*) of the department of a bank ; or (*f*) of a hospital.

V. P. BOKIL

THE TEACHING OF ENGLISH IN INDIA

ENGLISH has now been taught in this country, at different stages of education, for almost a century, and it is desirable that those engaged in the task of teaching it, as well as others interested in it, should pause and ask themselves if all is well with the subject, if those who teach it are competent, if it is any longer necessary to keep it the medium of instruction, and if a distinction is not needed between the teaching of the language and the literature. I have experience only of college and university teaching, but, having passed through the school classes, and as Chairman of the English Committee of the United Provinces Board of High School and Intermediate Education, I may perhaps be permitted to refer briefly to the earlier stages of English teaching also. My observations refer specially to the provinces in north India.

In the Primary schools, English is generally very badly taught. For one thing the educational authorities have refrained from giving a proper lead, and there is much confusion of ideals. The ancient method of 'cramming' is tacitly condemned ; of the newer methods—Direct, Dalton, Montessori, and the rest—the teachers know little, and that little inaccurately. There is also a mental antagonism to what they consider 'fads'. The consequence is that the Primary school boy is the victim of incomplete and half-hearted experiments. This, however, is not the whole trouble. Ordinarily the juniormost and least qualified teacher is

placed in charge of the primary classes ; or else, an old teacher on the verge of superannuation. In either case, the teaching is unsatisfactory—callous, experimental, unbaked, or disillusioned, desultory, and slipshod. During his most impressionable years the boy's mind receives bad nutrition. He learns incorrect pronunciation which leads to bad spelling—'loin' for 'lion'; 'claver' for 'clever'; 'fother' for 'father'—defects which become so much a part of his equipment that they are never eradicated. Much of what is laughed at as 'Babu English', much of what seems so tragically pathetic in the literary effusions of 'plucked B.A.'s, can, in the last analysis, be traced to incompetent, unqualified, inexperienced teachers of primary schools. Ruskin's 'deformation' is a term that can truly be applied to the results they produce. What is needed, then, in the Primary stage, is a declared policy of the educational mandarins regarding the system of training. Then, properly trained teachers should be appointed for these classes. Indeed, I would suggest that the best teachers of the school should be selected for looking after 'the young idea'. Child psychology is a subject of which most schoolmasters, except empirically, are totally ignorant. They should go through a course of training in phonetics: the new linguaphone ought to be of much value. Elocution is another branch of which they should know something.

So much for the teachers. Then most of the primers and readers prescribed for the junior school classes relate to subjects that are far removed from the life of the boys. They can take no real interest in them. Efforts should be made to bring the subject-matter of these books more in relation with the traditions and environments of Indian boys. Thus taught, English can become a subject of real interest and even enthusiasm, where it frequently is at present a dull, insipid and lifeless subject, endured only as a necessary evil.

English is a 'gorgon, hydra, or chimera dire' to most Indian boys, because not only is the language in itself difficult as an independent subject—and who will deny that it has numerous pitfalls for the unwary, 'shall' and 'will', and the definite article, for instance?—but also because all the other subjects are taught and examined through its medium. Examiners in history, science, and geography deduct marks frequently not because the candidate is weak in these subjects, but because he is not able to express his knowledge of these in correct English. The bewildered student's question, 'But how many teachers of science, history and geography themselves speak and write correct English?' is not entirely beside the point. What in other countries a young boy learns and expresses in his own mother-tongue, he has here to acquire and state in a difficult foreign language. He finds it difficult to assimilate knowledge, and even more difficult to express it. The description of the grammar school children whom Roger Ascham

knew in the north in the sixteenth century might have been written to-day :

‘ I remember, when I was young, in the North they went to the Grammar School little children ; they came from thence great Lubbers, always learning, and little profiting ; learning without Book everything. understanding within the Book little or nothing. Their whole knowledge was tied only to their Tongue and Lips, and never ascended up to the Brain and Head ; and therefore was soon spit out of the mouth again.’

The Indian boy labours hard and unceasingly, and denies to himself rest for recreation and relaxation : there is on his face always a look of strained seriousness ; the shades of the prison-house close upon him in his earliest years. And yet, Max Müller said that the Indian student cannot make even a clever mistake ! Exaggeration apart, it is undeniable that the burden on the boy is more than he can bear. There are various causes—inadequate physical nourishment, entirely unsuitable school-hours, economic pressure ; but one of the most important is the linguistic bondage under which he labours. It will not be very easy to free him from it ; the rival claims of indigenous tongues—as numerous as in the tower of Babel—will have to be settled ; textbooks will have to be produced ; teachers will have to familiarize themselves with technical terms in these languages. But these are all difficulties that can and should be overcome.

When the boy comes to the High school stage, he is able to think for himself, and to know his tastes and distastes. But there is hardly a normal, healthy, full-blooded lad to whom literature in some form or other does not make an appeal—a book of adventure, may be, or a poem, or a biography. Here, too, the great need is that of suitable selection of textbooks. They should be selected as good literature, as passports into ‘ the realms of gold ’, and not, as they frequently are, as forcing a moral down the young throats, or as teaching natural science. So long as the pieces can pass as literature—pleasant primarily and well-written, and only incidentally instructive—they have a right to exist. Teachers, too, should teach them as literature, living, warm, and vivid. For most of the boys, the parts and figures of speech, the varieties of metrical forms, scansion, and the rest can only remain the fopperies and fripperies of literature : if they are familiar with the spirit, if they can recognize good poetry when they read it and vicious prose when they see it, the end has been achieved. I am far from despising the technical parts ; they are useful and even necessary for the craftsman, and sorely will he repent ignoring them. But for the amateur who is not to live by it, what matter the tools of the trade, if he have the skill to enjoy the finished product ? The sovereign method is not to alarm and frighten the aspiring student ; let him see the best models and live in their com-

pany. He must be dull, indeed, and not suited for literary training if he cannot imbibe through this contact all that is worth while in literary mechanism.

Once the student has reached the university stage, it is for the tutor to 'educate', to develop the young man's tastes and correct them, to guide him to newer avenues of delight and inspiration, and to teach him the higher qualities of style, the intellectual and emotional analysis, the thoughtful explanation of what had hitherto been mainly a vague like or dislike. Here the student should familiarize himself with the best books, not necessarily the most famous ones, and familiarize himself so that they become not so much aids to elegant conversation or apt reference, but parts of his daily and hourly thought. Here again, the teacher can do much. The favourite method of teaching employed by the late Sir Walter Raleigh was the reading aloud to his class of his favourite prose and poetical passages from the various periods of literature. Far more satisfactory than dull pages from dry-as-dust literary histories, far more impressive than set lectures on well-worn themes, this method was calculated more to arouse general interest in a large class than to guide the eager searchings of the specialist. But specialization can be effective and useful only after a fairly comprehensive general background has been set. When that is done, what is needed is only an occasional lighting of the rush lamp at the central flame.

AMARANATHA JHA

SCIENCE TEACHING IN OUR SCHOOLS

IN spite of the stupendous efforts of the Joint Examination Board, it is an open secret that the teaching of science in our schools is far below what it ought to be. Every day we hear complaints from science teachers, as well as from students, about the lack of interest in this subject. It does really seem ridiculous that a subject like this, in spite of its various interesting aspects, its spectacular experiments, its thrilling and romantic tales of explorations and investigations, should appear so dull and uninteresting.

If the facts are probed into, many glaring truths—the actual causes of inefficient science teaching—will appear. How many of our science teachers really know and appreciate the aim with which it is taught in schools? The only aim that they know of is that it is a subject for the School-Leaving examination. Every science teacher ought to know that this subject is a part of that equipment and preparation for life which we expect the school to give to its pupils. Our life is like a glass prism with many sides. Each side requires to be polished in order that light may be reflected in its full glory through it. Obviously the

subject which imparts instruction on so vital a part of modern life can never be neglected; otherwise the side of the prism remaining unpolished will leave the prism a simple piece of glass. Apart from other utilitarian, cultural and practical aims, a teacher should know that a boy, in order to prepare himself for future life, to play his part in the community as an intelligent citizen, and to appreciate and enjoy the beauty and wonder of the world in which he has to live, should know something of science. According to the report of the committee appointed to inquire into the position of natural science in the educational system of Great Britain, a teacher of science should aim at two main objectives:

(a) To lead the pupils to the point of heuristic by getting them to reason about things they have observed;

(b) To acquaint the pupils with the broad outlines of great scientific principles and with the ways in which they are exemplified in familiar phenomena and applied in the service of man.

These objectives indicate the method to be used in teaching the subject to young minds—how a teacher should make his pupils face the problems, how these problems should be solved and satisfactory conclusions arrived at by reasoning, experimentation and discussion.

It is commonly believed that the teaching of any average teacher depends on the way in which he was taught when he was at school. Very little science was taught in the days when our teachers were at school. What they learnt in science was in colleges, where teaching is carried on on lines entirely different from those that ought to obtain in schools. The minds of students in colleges are ripe to grasp abstract principles, hence the teaching there has to be different. The same kind of teaching in our schools is bound to fail. Thus, instead of starting from concrete facts, our teachers often talk of abstract principles; they talk of details. Instead of showing the mere working of an instrument, they discuss the principle on which it is based; instead of carrying out experimental work and basing theory on such experimental work as is done by pupils, they give more of theory first, and, in support of the same, quote experiments performed not by students, not by themselves, but by scientists in whom their pupils are not interested at all.

The above facts bring us to the subject of the working of the mind of boys, especially in lower standards of High schools, where the beginning of the subject is made. The mind is not ripe enough at this stage to grasp abstract principles on which the working of a machine—a steam engine or a dynamo—depends. They are curious to see how the movements take place and continue, how the steam in a steam engine goes in and out, how the armature in a dynamo rotates. The why of things they do not care much to know. The interest of students should

be carefully studied, because it is through them that knowledge about various principles can be successfully imparted. Imparting knowledge does not consist in connecting a boy's head by a tube with a barrel of useful knowledge, and pumping it into him until his head shows signs of bursting, but it consists in connecting it with his old knowledge as well as with things in which he is interested. Instead of pumping there should be siphoning over, the new going in unconsciously with the old. Such a process creates confidence in boys in what they know, and a teacher who succeeds in sending out his boys with confidence in their own knowledge is better than one who sends out his boys with vain admiration about the new knowledge imparted to them. It is of no use making boys gape in wonder at the contents of the small head of the teacher, like the pupils of Goldsmith's village schoolmaster. What is wanted is self-confidence among boys in their own knowledge. To take a concrete example: while teaching the extraction of gold, very often teachers resort to giving information about the process of extraction—how the ore is crushed, how water is allowed to flow over it, how copper plates coated with mercury catch gold particles, and how gold is separated from mercury. Instead of giving these things in a dry-bones manner, a teacher should take advantage of a boy's knowledge of mercury and gold—how a gold ring is made white when it comes in contact with mercury, how a goldsmith uses crude ways of gathering fine particles of gold, how a small pill of mercury and gold is obtained and how he gets back gold from it. These things boys know because many of them have seen a goldsmith at work. If, in this way, boys' experiences are utilized in giving new information they do not feel diffident about this new knowledge, and such familiarity is the crux of efficient teaching.

Interest in the subject can be aroused by encouraging boys to make models. This practice is almost entirely neglected in our schools. A laboratory must necessarily have a small workshop, where boys can indulge in playing with tools (of course, with a certain aim) during their leisure hours. Models are effective in two ways. They are useful in illustrating new facts, they are also useful in fixing the facts already taught to boys. Ready-made models are seen in almost all laboratories, but they do not serve any useful purpose. These should be prepared by boys, or by boys and teachers conjointly, from simple materials and commonplace things. If teachers think a little in this direction, they will find a number of things, like tin-boxes, tin-cases, wheels of toy motor cars and such odd pieces of material extremely useful. It is in preparing models that students can get mastery over the subject. Science lessons taught to boys should develop in them the study of science as a hobby and as a useful recreation in their leisure hours.

As in all subjects, in science it is necessary to start with something pupils know about, with something they are interested in, which they can work with, take to pieces and put together again. Such analysis drives home the principles involved, and these, grasped singly, can be built up in an organized whole. If at a certain stage the building up of an organized whole is not possible it does not matter, as the same can be done later on.

One thing that has, perhaps, greatly contributed to the failure of efficient science teaching is the damping of spirits of students. Boys look forward to the day when they will be going to laboratories, working at tables with glass apparatus, etc. They are disillusioned the very first day when they find that they have to measure straight and curved lines, find out the areas of rectangles and triangles drawn in their note books. They often ask themselves, 'Is this the science we have to learn?' The way in which this damping of spirits can be averted is the arrangement of topics in suitable ways. The introductory portion should be taught either as part of mathematics, or at a later stage as the need for it arises. A beginning should be made either with chemistry or in physics with Archimedes' principle, or electricity and magnetism. A teacher should not find it difficult to start with any of the above portions. This will create a love for the study of science through practical work, but such practical work should not be an end in itself. It should be the starting-point as well as the very prop of all theoretical knowledge. All the data may not be gathered from practical experiments by boys, as certain experiments give results which are not quite as they should be. In such cases demonstration experiments on a large scale are necessary. One big and convincing and striking experiment by the teacher is far more valuable than a number of experiments by students leading to erroneous results. However, let no one think that science teaching should be made spectacular to the extent that pupils regard their teacher as a sort of magician or a wizard. The practical work should be reinforced by excursions to various workshops and factories, lime kilns and power houses. It is there that boys come in contact with real things. During lessons and experiments pupils should be inspired by telling them vivid stories about the lives and achievements of scientists, and the laboratory walls should be decorated with pictures and things connected with important discoveries and inventions.

The question of a suitable textbook need not be neglected. At present there is no book on the market which fulfils the needs of our boys. Till this question is satisfactorily settled, and even after that, if teachers will only help, there is nothing like preparing textbooks by pupils themselves. All definitions, descriptions, etc., should be framed by boys with the help of their teachers. This work should be a 'boy's own'.

What I have written has suggested some of the factors that have in fact led to inefficient science teaching in our schools, but they are not such as cannot be remedied. If teachers think, and think seriously, they can to a certain extent remove the ban on the existing science teaching. Their motto should be to inspire, interest, guide and discuss, but never to tell or dictate.

L. R. DESAI

NOTES OF AN ADVANCED LESSON IN SANSKRIT

STANDARD VI

Aim

Understanding of Sanskrit Literature with appreciation.

Subject-matter

KĀLIDĀSA'S RAGHUVAMŚA, Canto I, Verses 1 and 2

[Time : 45 minutes]

Introduction

भो बालाः, ज्ञायते किं संस्कृतकविषु कः श्रेष्ठः ? [‘कालिदासः . . . ,’ etc.] वक्तव्यं कस्यचित् कालिदासकृतस्य काव्यस्य नाम [शाकुन्तलम्, रघुवंशम्] अभिज्ञानशाकुन्तलं नाम तस्य नाटकम् । रघुवंशमित्यपरं काव्यम् । अपि श्रूयते रघुवंशात् संभूतः कोऽपि नृपः ? [दशरथः, श्रीरामः] भवतु । अस्मिन् काव्ये (pointing to the book) रघोर्वंश एव वर्ण्यते । तत्र प्रथमसर्गे एतावाद्यौ श्लोकौ । अयमहं तौ वाचयामि ।

Presentation

The teacher reads verses 1 and 2, slowly and distinctly, emphasizing the words वन्दे and सूर्यप्रभवो वंशः with proper action.

वागर्थाविव संपृक्तौ वागर्थप्रतिपत्तये ।

जगतः पितरौ वन्दे पार्वतीपरमेश्वरौ ॥ १ ॥

कः सूर्यप्रभवो वंशः कः चाल्पविषया मतिः ।

तितीर्षुर्दुस्तरं मोहादुडुपेनास्मि सागरम् ॥ २ ॥

एतौ श्लोकौ पुनरपि मनसा चिन्तयत । प्रथमश्लोके किं करोति कविः ? [वन्दते] ग्रंथारम्भे देवतावन्दनं साधारणमेव सर्वेषां कवीनाम् । कौ देवौ वन्दते कालिदासोऽत्र ? [पार्वतीपरमेश्वरौ] प्रथमश्लोके किं क्रियापदम् ? [वन्दे] कर्तृपदम् ? [अहमित्याध्याहृतम्] कर्मपदम् ? [पार्वतीपरमेश्वरौ] कर्तृकर्मक्रियापदयुक्तं प्रधानं वाक्यं वक्तव्यम् । [(अहं) पार्वतीपरमेश्वरौ वन्दे]. प्रथमचरणस्य पदविश्लेषः ? [वागर्थौ इव संपृक्तौ]. कीदृशौ पार्वतीपरमेश्वरौ ? [जगतः पितरौ] (‘मातापितरौ’ इति समासस्य) ‘पितरौ’ इति एकशेषद्वन्द्वरूपम् (to be put on B.B.) अथ कीदृशौ तौ ? [संपृक्तौ, (संबन्धौ, सम् + पृच् धातोः भूतकालविशेषणम्) (to be put on B.B.)] कयोर्विव

संबंधः पार्वतीपरमेश्वरयोः ? [वागर्थयोरिव]. 'वागर्थौ' इति समासस्य विग्रहो वक्तव्यः । [वाक् च अर्थश्च] (to be put on B.B.) कथं वाक् च अर्थश्च संबन्धौ ? [यत्र यत्र वाक् (शब्दो) वर्तते तत्र तत्र अर्थः] नित्यसंबन्धौ इत्यर्थः । कथं पार्वतीपरमेश्वरौ नित्यसंबन्धौ, नित्य-संबन्धौ वा ? [यत्र यत्र पार्वती तत्र तत्र ईश्वरः (शिवः)] अथ किमर्थं कविः पार्वतीपरमेश्वरौ वन्दते ? [वागर्थप्रतिपत्तये]. प्रतिपत्तिः, ज्ञानं प्राप्तार्था (to be put on B.B.). कयोः ज्ञानार्थं प्रतिपत्तये वा कविर्वन्दते ? [वागर्थयोः]. अधुना अन्वयो वक्तव्योऽस्ति लक्ष्यं श्लोकस्य । अधुना अर्थः । (both answers to be fixed by repetition. The teacher may help the class with questions like किं प्राप्तुमिच्छति कविः ?)

प्रथमश्लोके देवतावन्दनं कृत्वा कविर्द्वितीयं श्लोकं रचयति । (The teacher reads verse 2 with proper gestures to impress the phrases क . . . सूर्यप्रभवो वंशः and क . . . अल्पविषया मतिः) इमं श्लोकं चिन्तयत । किं वर्णयतेऽस्मिन् श्लोके ? [सूर्यप्रभवो वंशः] किमन्यत् ? [मतिः] कविना कस्य मतिर्वर्णयते ? [स्वमतिः] सा च कीदृशी ? [अल्पविषया] [अल्पो विषयो यस्याः] (to be put on B.B.) अल्पबुद्धिरहमिच्छाशयः कवेः । केषां वंशः सूर्यप्रभवः ? [रघूनाम्]. सूर्यप्रभवः इत्यस्य. समासस्य विग्रहः ? [सूर्यात् प्रभवः (संभवो, जन्म वा) यस्य] रघूणां वंशस्य सूर्यात् प्रभव इति श्रूयते पुराणेषु (to be put on B.B.) कवेर्मतिः स्वल्पा । कीदृशस्तु रघूणां वंशः ? [सुमहान्] अतस्तयोर्महदन्तरम् । तत् 'क . . . क' इति प्रयोगेण सूच्यते । कयोर्महदन्तरम् [रघुवंशस्य कविमतेश्च]. तत् कथं वर्णयते कविना ? (answer to be fixed by repetition) इदमेव महदन्तरं वर्णयितुं कविर्वृष्टान्तं योजयति द्वितीयार्थे । अत्र पदविश्लेषो वक्तव्यः । [तितीर्षुः दुस्तरं मोहात् उड्डपेन अस्मि सागरम्] क्रियापदम् ? [अस्मि] कर्तृपदम् ? [अहमित्यप्याहृतम्] 'अहमस्मि' इति को वदति ? [कविः] कीदृशोऽहमिति वदति कविः ? [अहं तितीर्षुः अस्मि इति] तितीर्षुः, तरितुमिच्छः, 'तृ' धातोः, इच्छार्थकं विशेषणम् (to be put on B.B.) किं तरितुमिच्छति कविः ? [सागरम्, etc.] कीदृशं सागरं तरितुमिच्छति ? [दुस्तरं . . . etc.] दुस्तरः, दुःखेन तीर्यते (उड्ड-यते) इति । सागरो दुस्तरः, किं सुतरं भवति ? [नदी सुतरा भवति] किं साधनं नदीतरणे ? [नौका, उड्डपम्] उड्डपं, नौका (to be put on B.B.). किं कवेः साधनं सागरतरणे ? [स्वल्पमुड्डपमेव]. कीदृशं साधनं भवेत् सागरतरणे ? [महती नौः]. अतः कविर्वदति । स्वल्पेन नौसाधनेन अहं तरितुमशक्यं (अगाधं च) सागरं तरितुमिच्छामि । कोऽत्र सागरवत् ? [सूर्यप्रभवो वंशः] किमुड्डपवत् । [कवेः अल्पविषया मतिः] कथमेतादृशमविचारितं कर्म करोति कविः । [मोहात् . . . , etc.] मोहः, भ्रमः, मौल्यम् (to be put on B.B.). अहो मम मूलत्वम् । यदल्पधीरहं महतो रघुवंशस्य इतिहासं वर्णयितुमिच्छामि । (to be fixed by repetition) द्वितीयार्थस्य अन्वयो वक्तव्यः । अधुना अर्थः । (both answers to be fixed by repetition) रघुवंशः सागरसमः दुस्तरः दुर्वर्ण्यो वा, न तु सागरः । कवेर्मतिस्तु उड्डपसमा अल्पबला न तु उड्डपम् । यथा उड्डपेन सागरः तरितुं न शक्यते, तथा अल्पविषयया कविमत्या रघुवंशो वर्णयितुं न शक्यते । अत्र निदर्शनालंकारः । अन्यान्यपि उदाहरणानि यथाप्रसंगं स्मर्तव्यानि ।

Recapitulation and Assignment

को विषयः प्रथमतः श्लोकस्य ? कथं तौ जगतः पितरौ [यतः परमेश्वरेण (पार्वतीयुक्तेन, अर्धनारीनटेश्वरमूर्तिना) जगत् सृष्टमिति श्रूयते पुराणेषु]. को हेतुर्वन्दने ? द्वितीयश्लोके कविरात्मानं कीदृशं भावयति [मूढम्]. किं कारणं तत्र ? [कार्यं सुमहत्, साधनं च अल्पम्] दुष्कर्ममपि कार्यं कथं सुकरं जातमिति कविः परेषु श्लोकेषु वर्णयति । अथ तद्वाचयिष्यामः । एतौ द्वौ श्लोकौ पठितव्यौ.

(The teacher gives model recitation followed by simultaneous and individual reading.)

Explanation regarding the method followed :

1. The matter enclosed in rectangular brackets suggests the kind of answers expected from pupils. They should as a rule be required in the form of complete sentences, and should be fixed by repetition, whenever they contain good idiom, etc.

2. Grammatical Peculiarities : These should be referred to only in those cases where they help understanding. The old shastri's method sometimes overdoes this part of the lesson ; they forget that too detailed a discussion of grammar in a literary lesson is a digression, and the pupil often loses the literary thread altogether. Hence names of compounds are not referred to, unless absolutely necessary. So also, the ordinary terms for past participles, etc., are only used ; as the class gets properly initiated into easier, Paninian terms, they may be introduced with advantage, but not at the outset. Samdhis should be optional in oral work, especially when they form an impediment to understanding.

3. The above notes are jottings from an actual lesson given some time ago to a class, learning Sanskrit by the Direct Method, as adapted by me to Indian environments. The matter covered is rather limited in quantity, but it is so with the first lesson in any subject. The class in reference did the whole of canto I (i.e. 95 verses) in 27 lessons of about 45 minutes each, allowing sufficient time for revision questions and recitations. An examination was set at the end of the course. The questions and the typical answers therein will be published later on. It is hoped that Sanskrit teachers all over India will peruse the above notes and oblige me with suggestions, which will be greatly appreciated.

G. P. JAMBALE

A NOTE ON CLASS MATCHES

CLASS matches in games are things of everyday occurrence in schools. Matches create competition and competition creates interest, the prime source of improvement in education. Class matches in studies are not so easily arranged as class matches in cricket or football.

But when once organized they may be good substitutes at least for home examinations, the abhorred horror of the boys.' And they are easily worked, especially in double sectioned schools.

Class matches in studies were introduced in India by the Jesuits, but they have been almost entirely forgotten now.

They are arranged by dividing the whole class into two batches; it is preferable to have in no case more than 15 on each side. The first two best students are named by the teacher, and these boys pick their own teams. The second boy in order of merit may have the first choice to call a student to his side. Naturally he will take the third best student to his side, and then the first will select the fourth, and so keep the balance, and so on. The teacher at this stage announces the subject of the match (e.g. the VII or VIII class course in geometry or the first fifty pages of the text) and gives them a reasonable time for preparation. On the day of the match each boy is given a sheet of paper, one answer book, and his books. Each boy separately writes the three questions which he thinks most difficult, and then answers them in the answer book. The teacher then takes these papers, and marks them on the merit of the questions set. Thus, with sections of 15, the teacher will have 45 questions with him of each batch. In these 45 some ten may be common and five absurd. Out of the remaining 30 the teacher selects the 10 or 12 best questions with the help of the captain (the best student), and sets these to the other party. The time for the paper will be determined by the time taken in solving those questions by the setters themselves.

The answers may be marked by the teacher with the help of the captains and the marks of all totalled. The paper setting test may be termed the 'first innings', and the maximum marks of this may be 15; and the 'second innings', that is, the paper-solving business, may have 85. The teacher is the umpire. The total score of each team is then announced, and the winners are rewarded, just as winners of hockey or football league matches.

Whereas in examinations good boys work throughout, backward students often care nothing for the first and second terminals and work only at the end of the year, with, naturally, no good result. In this system good boys, in order to keep their position and bring a good name to the team to which they belong, push on the laggards and make them work. How often have we seen good bowlers giving practice to a very ordinary batsman to improve his game so as to win the match. Why should not this spirit prevail here? A great educationist writes, 'I preferred the emulation which stimulated the idle rather than the industrious,' and our system, though indirectly, does stimulate the idler.

To the possible objection that the system does not suit lower

classes I may say that the teacher can, in these classes, write the questions himself and hand over the lists to the boys. The boys may then and there ask one of those questions from the other team, and any boy of the opposite team may answer. If it cannot be answered by the opposite team, then the boy who asked the question should answer; if the answer be right he gets marks, and, if wrong, then he or his team has marks deducted. This kind of oral match in lower classes certainly evokes great interest, and such matches can be held more often than in the senior classes.

As matters stand at present, boys know nothing about paper setting. The class match system at any rate gives them familiarity with the different forms in which a question can be asked, for while attempting to make their paper stiff they will naturally avoid the obvious, and hence ultimately benefit themselves when the time comes to answer questions in their final examination. Then again, in solving their questions they will use their books properly and give model answers. Such answers, after the announcement of the result, may be given to all the boys. All the difficult things, from the boys' standpoint, in fact, are asked, and so the system also affords a good means of revision.

When teachers set papers pupils often complain justifiably of the time taken to give adequate answers. But when one of his class-fellows finishes a good answer in eight minutes, he cannot grumble if his own answer is not finished in ten.

These matches should not, of course, be held too often; twice or thrice a year is sufficient. When the boys have covered a good part of the ground of their course they may be asked to revise, and the revision may be tested. Both innings may take four hours, and, if the same system be really fruitful, this time should not be grudged.

BHAGWAT CHARAN

BOOK LISTS

IV. Psychology (General)

(The prices here are in some cases higher than those usually listed in TEACHING. The fact seems to be that the good psychology book is generally expensive. All the books listed below are, at any rate, worth considering for inclusion in libraries for teachers.)

<i>Name of Book</i>	<i>Author</i>	<i>Publisher</i>	<i>Date</i>	<i>Price</i>
				£ s. d.
<i>Herbartian Psychology Applied to Education</i>	J. ADAMS	H.		0 5 0
<i>Psychology for Bible Teachers</i>	E. A. ANNETT	Scrib.	1925	0 5 0
<i>The Individual and the Environment</i>	J. E. ADAMSON	L.	1921	0 14 0

Name of Book	Author	Publisher	Date	Price
<i>Elements of Educational Psychology</i>	L. A. AVERILL	H.		£ s. d. 0 7 6
<i>The Mind and Its Place in Nature</i> ..	C. D. BROAD	K.P.	1925	0 16 0
<i>Everyday Psychology for Teachers</i> ..	F. E. BOLTON	Scrib.	1923	0 10 6
<i>Stories for Character Training</i> ..	E. L. CABOT and E. EYLES	H.	1912	0 3 6
<i>Human Behaviour</i> ..	S. S. COLVIN and W. C. BAGLEY	Mac.		0 6 6
<i>Psycho-Analysis for Normal People</i>	G. COSTER	O.U.P.	1926	0 2 6
<i>The Learning Process</i> ..	S. S. COLVIN	Mac.		0 8 6
<i>Fundamentals of Psychology</i> ..	B. DUMVILLE	U.T.P.	1917	0 6 6
<i>How We Think</i> ..	J. DEWEY	H.	1909	0 6 0
<i>Psychology in the School-Room</i> ..	T. DEXTER and A. GARLICK	L.	1905	0 5 6
<i>Instinct in Man</i> ..	J. DREVER	C.U.P.	1921	0 10 6
<i>An Introduction to the Psychology of Education</i> ..	"	L.		0 6 0
<i>Psychology Applied to Education by the late James Ward</i> ..	G. DAWES HICKS	C.U.P.	1926	0 10 6
<i>Applied Psychology</i> ..	B. C. EVER	Mac.	1923	0 10 6
<i>Psychology of the Common Branches</i>	F. N. FREEMAN	H.	1916	0 7 6
<i>Introductory Lectures on Psycho- Analysis</i> ..	S. FREUD	A. & U.	1923	0 16 0
<i>Educational Psychology</i> ..	C. FOX	K.P.	1925	0 10 6
<i>Know Your Own Mind</i> ..	W. GLOVER	C.U.P.	1918	0 3 0
<i>Psychoanalysis in the Class-Room</i> ..	G. H. GREEN	U.L.P.	1924	0 6 0
<i>Vocational Psychology</i> ..	H. L. HOLLING- WORTH	D.A.	1923	0 12 6
<i>Dreams and Education</i> ..	J. C. HILL	Meth.	1926	0 4 0
<i>Application of Psychology to Educa- tion</i> ..	HERBERT and MULLINER	Sonn.	1898	0 4 6
<i>How We Behave. An Introduction to Psychology</i> ..	A. E. HEATH	L.	1927	0 1 0
<i>The Principles of Psychology, Vols. 1 and 2</i> ..	W. JAMES	Mac.	1918	1 10 0
<i>Psychological Types</i> ..	C. G. JUNG	K.P.	1923	1 5 0
<i>An Outline of Psychology for Educators</i> ..	A. J. D. LOTHIAN	B.	1923	0 5 0
<i>An Introduction to Psychology</i> ..	T. LOVEDAY and J. A. GREEN	O.U.P.	1915	0 6 0
<i>The Bearings of Modern Psychology on Educational Theory and Practice</i>	MEREDITH	Cons.		0 3 6
<i>The New Psychology and The Teacher</i> ..	H. C. MILLER	Jar.		0 6 0
<i>The Making of Character</i> ..	J. MACCUNN	C.U.P.	1919	0 4 6
<i>The Psychology of Emotion</i> ..	J. T. MACCURDY	K.P.	1925	1 5 0
<i>Physiological Psychology</i> ..	W. MCDUGALL	Dent	1918	0 1 9
<i>An Introduction to Social Psychology</i>	"	Methuen	1924	0 10 6
<i>An Outline of Psychology</i> ..	"	"	1923	0 12 0
<i>Character and Conduct of Life</i> ..	"	"	1927	0 10 6
<i>Psychology and Education</i> ..	R. M. OGDEN	Rout.	1926	0 12 6
<i>Essentials of Psychology</i> ..	W. B. PILLSBURY	Mac.	1920	0 8 6
<i>The Struggles of Male Adolescence</i>	C. STANFORD			
<i>Psychology of Elementary School Subjects</i> ..	HOMER B. REED	A. & U.	1928	Rs. 5 10
<i>Conflict and Dream</i> ..	W. H. R. RIVERS	K.P.		0 8 6
<i>The Education of Behaviour</i> ..	I. B. SAXBY	U.L.P.	1921	0 6 0
<i>Educational Psychology</i> ..	SANDIFORD	L.		0 10 6
<i>Manual of Psychology</i> ..	G. F. STOUT	U.T.P.	1921	0 12 6
<i>Analytic Psychology, Vols. 1 and 2</i> ..	"	A. & U.	1918	1 5 0
<i>The Nature of Intelligence and the Principles of Cognition</i> ..	C. SPEARMAN	Mac.	1923	0 15 0
<i>The Abilities of Man</i> ..	"	"	1927	0 16 0

Name of Book	Author	Publisher	Date	Price
				£ s. d.
<i>The Adolescent</i>	J. W. SLAUGHTER	A. & U.	1925	0 3 6
<i>Modern Psychology and Education</i>	M. STURT & E. C. OAKDEN	K.P.	1927	0 7 6
<i>A Text-book of Psychology</i> ..	E. B. TITCHENER	Mac.	1919	0 8 6
<i>Psychology and Pedagogy of Writing</i>	M. E. THOMPSON	W. & Y.	1911	Rs. 8 0
<i>Psychological Principles</i>	J. WARD	C.U.P.	1920	1 2 6
<i>Psychology Applied to Education</i> ..	"		1926	0 10 6
<i>Psychology</i>	R. S. WOOD- WORTH	Meth.	1924	0 8 6
<i>Education and Psychology</i>	M. WEST	L.	1914	Rs. 4 4
<i>The Psychology of Education</i> ..	J. WELTON	Mac.	1919	0 10 0
<i>Human Nature and Education</i> ..	A. S. WOOD- BURN	O U.P.	1926	Rs 6 0
<i>The Economy and Training of Me- mory</i>	WATTS	L.		0 2 6
<i>The Reconstruction of Mind</i>	WINGFIELD- STRATFORD	L.		0 3 6

A. :	Ed Arnold	L. :	Longmans, Green & Co.
A. & U. :	Allen & Unwin	Mac. :	Macmillan & Co.
B. :	Geo. Bell & Sons	Meth. :	Methuen & Co.
Cons. :	Constable & Co.	O.U.P. :	Oxford University Press
C.U.P.	Cambridge University Press	Rout. :	George Routledge & Sons
D.A. :	D. Appleton & Co.	Scrib. :	C. Scribners' Sons
Dent. :	J. M. Dent & Sons	Sonn. :	Sonnenschien
Ginn :	Ginn & Co.	U.L.P. :	University of London Press
H. :	Harrap & Co.	U.T.P. :	University Tutorial Press
Jar. :	Jarrollds Ltd.	W. & Y. :	Warwick & York
K.P.	Kegan, Paul & Co.		

REVIEWS

Memorandum on the Teaching of Modern Languages. Issued by the Incorporated Association of Assistant Masters in Secondary Schools, 1929. University of London Press Ltd. Pp. 236. Price, 4s.

The Association of Assistant Masters have in recent years issued valuable *Memoranda* on the teaching of school subjects—English, History, Elementary Geometry. Their *Memorandum on the Teaching of Modern Languages*, 1929, should be studied with the utmost care by all language teachers and school organizers of High schools in India.

The preface acknowledges, but does not apologize for, the 'patchiness' of the *Memorandum*, since many shades of opinion have been incorporated in it, for on its Committee were 'champions of the extreme Direct Method and of many variations of that method'. It is refreshing to think that 'no one tried to urge a return to methods of a generation ago, which may be taken as a sign that they are dead or moribund, and that, should they be surviving anywhere, they will speedily vanish'. English in many Indian schools, especially in the mofussil, is a modern foreign language taught by the 'translation' methods of a generation ago.

The Committee feel that a language other than English should form an essential part of the work of every child. Chapter I deals with

the aims, utilitarian and cultural, of modern language teaching. It differentiates the aim for the average 'non-intellectual boy' from that for the 'academic' type.

Chapter II discusses fully the necessary qualifications for a modern language teacher :

'1. Formal, tangible, and easily checked, e.g.—

'Degree.

'Residence abroad.

'Training (especially in phonetics and philology).

'2. Imponderable. Sound general education ; aliveness and skill in using teaching devices (e.g. in object lessons) ; personality ; ability to impart knowledge ; a heart open to the language and literature ; a mind instinctively sure of idiom.'

The Committee deplore the necessity felt by some schools to make use of non-specialists. It reiterates that 'the specialist is absolutely essential in the first two years, at least, and in the advanced course work'. Indian headmasters do not seem to be alive to the necessity for specialist teachers of foreign languages for beginners. Any master is good enough to begin boys speaking English. The trained specialist they employ for teaching the higher standards. They forget that the best teaching must be given at the start, so that the pupil has nothing to unlearn.

'A class of proper size,' say the Committee, must 'not have more than 20 pupils.' These must be grouped according to linguistic ability, and not in the usual forms. The *Memorandum* shows how these pupils can be re-grouped. The work must be ordered and no skipping of forms should be allowed, for 'in no subject is more harm done by premature promotions than in language study'.

'The School Course' and 'Aids to Method', with special reference to French, are dealt with exhaustively in Chapters IV and V, which should be read and re-read by every teacher of French.

Chapter VI, on the 'Testing of Knowledge', whether class work, homework or examinations, gives many useful hints on variety of method. The model examination papers are worthy of careful study, as also the section on an experiment in marking, which shows how our examinations of the composition type are far indeed from 'fool-proof'.

The *Memorandum* ends with a good bibliography on Method and Linguistics.

Though meant primarily for teachers of French and other non-English European living languages, we would recommend the careful study and adaptation of the principles and methods embodied in the *Memorandum* to all teachers of English in India.

Domestic Science for High Schools in India. By MABEL A. NEEDHAM, B.A. (Lond.). Oxford University Press. Pp. xvi + 358. Price, Rs. 2.

This book meets a long-felt need. Year by year more schools realize the advantage of substituting Domestic Science for the ordinary science course in girls' High schools, but, except to the very few who are fortunate enough to have on their staff some one specially trained to teach the subject, the great difficulty has been not only to decide on just how to make it meet the home needs of the average Indian school-girl, but to teach it in such a manner that it may be a real training in scientific methods of observation and experiment. Written as the result of many years' teaching experience in India, Miss Needham's book not only fulfils both these objects, but it makes the subject a most fascinating study. The whole book is, as the author claims, 'planned on the principles that we *learn by doing* and that *the doing must be intelligible to the doer*,' and to this end it is full of simple, inexpensive experiments, while the agenda to each chapter give most valuable suggestions for further practical work in connexion with school and home life. The book throughout is intensely practical, and is written in such a simple, interesting style, and so clearly illustrated, as to bring it within the easy comprehension of the ordinary 6th and 7th standard Indian schoolgirl.

Another very attractive feature is the importance attached to the æsthetic side of the subject. As Professor Hamley says in his Foreword, 'the author of this sound and helpful book has sought a judicious blend of the human and scientific, and she has not forgotten something that is both human and scientific—the appeal of the beautiful.'

In every respect it is admirably adapted as a textbook both for teachers and pupils, while the chapters on House Decoration, Furnishing, Household Cleaning and Repairs, Germs, Insects and Pests, Light, Warmth and Electricity in the House, are full of useful hints to every house-wife.

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Matriculation English. By J. W. MARRIOTT. G. G. Harrap & Co. Pp. 263. Price, 2s. 6d.

This welcome book follows up the work done by the same writer in his excellent *A Year's Work in English*, and should prove equally acceptable in India. The author endeavours, and, we think, successfully, to bring out the useful and the good elements in his subject, taking 'useful' here to stand for English in its aspect as an examination subject, and 'good' as it initiates the student into the joys of self-expression, both for himself and as it is to be appreciated in the great masters of English prose and poetry.

The range of the book may perhaps be best illustrated by a list of its

chapters. These deal successively with the Use of the Dictionary, The History of the Language, Written English, Style, Figures of Rhetoric, Prose and Verse, Punctuation, Paraphrasing, Précis-Writing, English Grammar, The Correction of Sentences, and Reading. There are also Appendixes on Grammatical Terms and Verse-Forms. An exercise concludes each chapter.

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Self-Expression in a Junior School. By L. LOGIE. Oxford University Press, 1928. Pp. 86. Price, Rs. 6-6.

The modern educationist recognizes the true educative value of self-expression. The child is, like the poet-laureate, a lover of 'all beauteous things', and his teachers must develop his powers so that he may say with the poet:

'I too will something make,
And joy in the making.'

Miss Logie shows how the child's creative activity can be wisely directed—a sense of perspective that would shame many grown-ups is implanted in mites of six drawing fences and tram-lines. Self-expression for the teacher of her school is the reproduction of impressions received through the senses, 'but not copy work' of the teachers' idea of what these impressions should be.

The sympathetic teacher urges even the littlest one to look again and improve on his own efforts, thus developing his critical faculty. The children, aged from seven to ten, not only draw and paint 'pictures' to illustrate the poems read to them, but exercise 'the highest form of self-expression which demands accuracy—that of language—the expression of thoughts metrically, one may almost say poetically.' There are many examples of their illustrations and verses.

The details of nature study from month to month show how the child's powers of observation and æsthetic sense can be cultivated. The nature calendars, as well as history and geography illustrations, are mostly community work in which every child takes its share according to its abilities and individual interests.

A most interesting use of the 'self-expression' of the drawing and crayon classes is made in the children's needlework. The simple designs of vertical, horizontal and oblique lines are criticized by the young artists, and the best ones copied in the stitchery on cushion covers, table-centres, handkerchiefs and satchets, or the child is encouraged to create her own designs.

The reproduction of illustrations in this book leaves nothing to be desired. Every teacher in our primary schools should have a chance of consulting it and seeing what can be done by children in the way of self-expression.

A School History of India. By SHAFAT AHMED KHAN, M.A.,
D.Litt. Messrs. Longmans, Green & Co. Pp. 380. Price, Rs. 2.

This is a serviceable little volume, published at a reasonable price, which forms a welcome addition to the number of good school histories of India. The author not unnaturally devotes considerable attention to the Mahomedan period, and his treatment of this period is by far the best and most detailed. Indeed, the whole account of the non-British period is extremely well done, but we seem to find evidences of haste and a certain amount of bareness in the treatment of the British period.

This becomes increasingly obvious, and the last chapter reads much more like a mere précis of events than a connected history. The last sentence, in particular, leaves behind an unfortunate impression of haste and lack of care to present accurate and well-documented information.

BOOKS RECEIVED

First Lessons in Geometry (The purely practical introduction in Part I of Shorter School Geometry). Macmillan & Co., Ltd. Price, As. 11.

A New Geometry for High Schools. By A. A. KRISHNASWAMI AYYANGAR, M.A., L.T. Foreword by R. VAIDYANATHASWAMY, M.A., D.Sc., F.R.S.E. Part I. Srinivasa Varadachari & Co., Madras. Price, Re. 1-4.

Selections from Edwin Arnold in Poetry and Prose. Macmillan & Co., Ltd. Price, Re. 1-8.

Forty-Five Easy Games for Infants and Juniors. By DOROTHY D. PYBUS. Oxford University Press. Price, 2s. net.

Individual Instruction in English Composition. By STEPHEN DEWITT STEPHENS. Harvard University Press. Price, 10s. 6d. net.

Spelling Cricket: A New Educational Game. By S. N. KULKARNI, B.A., L.T. and V. G. BHAVE, B.A., L.T., Nagpur. Price, An. 1.

An Introduction to Real Algebra. By K. SRIRAMULU, M.A., and G. RAMACHANDRAN, M.A., L.T. Macmillan & Co., Ltd. Price, Rs. 2.

The Sanskrit Primer (Vidyarambha.) By S. H. SHUKLA, B.A. Published by the author. Price, An. 1-6.

The Advanced Sanskrit Primer, or The Second Stage in Sanskrit Reading (Bhūmika.) By S. H. SHUKLA, B.A. Published by the author. Price, As. 2-6.

The New Method Composition. By MICHAEL WEST, M.A., Ph.D. Longmans, Green & Co., Ltd. Price, Part I, As. 4; Part II, As. 6; Part III, As. 6.

The Country School: Its Practice and Problems. By M. K. ASHBY. Oxford University Press. Price, 6s.

The Story of the Mosquito. By B. S. CHALAM. Oxford University Press. Price, As. 4.

